

**THE UNIVERSITY OF
CAPE TOWN
GRADUATE SCHOOL OF BUSINESS**

**A FRAMEWORK FOR DISCRETIONARY EFFORT
BASED ON PERFORMANCE EXPECTANCIES IN INTEGRATED WORK
ENVIRONMENT**

BY

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DEDICATION

This thesis is dedicated to the people who supported me through the most trying times of my life: my dad Andrew, my brothers Francis and Joseph as well as my friend Ashley (at the GSB restaurant). Above all, to God who gave me the strength during my trying moments.

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ABSTRACT:

In an age of immense business competition, and far-reaching leadership requirements, Discretionary Effort is required as part of a value creation and enhanced performance strategy. Discretionary Effort is the unsolicited effort, which employees expend when certain work expectations are met. Traditionally, Expectancy, Valence and Instrumentality (VIE) have been the leading variables of this construct. Research has however, revealed that self-affirmation (A) adds another important dimension to the Discretionary Effort Framework (VIEA) (April & Katoma, 2008).

This research investigated Discretionary Effort (the full VIEA) in an integrated work environment, using professional networks, consisting primarily of 1548 managers and specialists, who were either co-located or virtually located in different sectors. The survey instrument was divided into four parts, with the first and second parts measuring expectancies at individual and work level respectively. The third and fourth parts measured the degree of discretionary behavior of employees, and the extent to which organizations considered these relevant. The data were collected through faxes, emails, and online survey tools from employees attending leadership courses at the Business School.

Results revealed that Discretionary Effort was not significantly different in clusters at the micro level of units of employees, but significantly different at the macro (sector) level – with service-oriented sectors, such as retail, scoring higher Discretionary Effort compared to product-oriented industries, such as engineering. Within the clusters or units, process-oriented influencer variables, such as experience, showed significant effects on the aforementioned Discretionary variables. Employees were also more generally concerned with higher levels of needs (social needs), as specified in Maslow's hierarchy of needs (Maslow, 1968), partly due to interpersonal interrelations and knowledge-dependent professional networks. The most significant hypotheses included individual network learning, team sustainability, effort learning all at $p < .001$, while interpersonal performance and mutual reciprocity were at $p < .10$.

Construct validity, using covariates, revealed an acceptable Discretionary Effort model fit of VIEA: $\chi = 102$, $df = 17$, $RMSEA = .0584$, $NFI = .95$, $CFI = .95$ and $GFI = .983$.

Table of Contents

| | |
|--|----------|
| CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW | 1 |
| 1.0 INTRODUCTION | 1 |
| 1.1 DISCRETIONARY EFFORT | 1 |
| 1.2 PROBLEM STATEMENT..... | 2 |
| 1.2.1 Discretionary Effort and Service Concepts..... | 3 |
| 1.2.2 Value Creation and Discretionary Effort | 4 |
| 1.2.3 DE and Value-Congruency | 5 |
| 1.2.4 Discretionary Effort and Community of Practice (COP/s) | 6 |
| 1.2.5 Discretionary Effort and Knowledge Theories | 7 |
| 1.3 IMPLICATIONS OF EXPECTANCIES TO LEADERS | 8 |
| 1.4 SCOPE OF THE RESEARCH | 9 |
| 1.5 RESEARCH MOTIVATION | 11 |
| 1.6 ORGANIZATIONS AND DE CHALLENGES..... | 14 |
| 1.7 DEMAND FOR DISCRETIONARY BEHAVIOR | 15 |
| 1.8 APPLICATION OF EXPECTANCY | 16 |
| 1.9 RESEARCH QUESTIONS | 17 |
| 1.10 IMPLICATIONS OF CURRENT RESEARCH..... | 17 |
| 1.11 LITERATURE REVIEW | 19 |
| 1.12 DE as an Aspect of Organizational Behavior | 19 |
| 1.12.1 Organizational Structure and Functional Components | 19 |
| 1.12.2 Organizational Process Modeling | 21 |

| | |
|---|-----------|
| 1.12.3 Organizational Cultures and Spirits (Identity) | 22 |
| 1.13 WORK MOTIVATION..... | 24 |
| 1.13.1 Complexities around Motivation | 24 |
| 1.13.2 Extrinsic Motivation | 25 |
| 1.13.3 Intrinsic Motivation | 25 |
| 1.13.4 Developments in Motivation related Theories..... | 26 |
| 1.14 CONTENT THEORIES OF MOTIVATION..... | 28 |
| 1.14.1 Hawthorne Effect..... | 28 |
| 1.14.2 Maslow's Hierarchy of Needs | 28 |
| 1.14.3 McGregor's X and Y Theory..... | 30 |
| 1.14.4 Herzberg's Two-Factor Theory | 32 |
| 1.14.5 McClelland's Theory of Needs..... | 33 |
| 1.15 EXTENDED CONTENT THEORIES AND MOTIVATION | 33 |
| 1.15.1 Mental Maps | 33 |
| 1.15.2 Maintenance Theory | 34 |
| 1.15.3 The role of Work Attitudes in Shaping Behavior | 35 |
| 1.16 PROCESS THEORY OF MOTIVATION (EXPECTANCY) | 37 |
| 1.16.1 Strategic use of DE | 40 |
| 1.16.2 Intricacies of DE: Expectancies as Beliefs | 42 |
| 1.16.3. Descriptive Accuracy..... | 45 |
| 1.16.4 Self-Affirmation..... | 49 |
| 1.17 SUMMARY | 51 |
| CHAPTER 2: CONTEXT AND EXTENDED DE THEORY | 52 |
| 2.0 INTRODUCTION | 52 |
| 2.1 DE AUDIT..... | 52 |

| | |
|---|-----------|
| 2.2 KNOWLEDGE WORKER CONTEXT | 54 |
| 2.2.1 Knowledge Worker Orientation Context | 55 |
| 2.2.2 Motivators for Knowledge Workers | 56 |
| 2.3 CONTEXTUAL LEARNING AS DE STRATEGY | 57 |
| 2.4 KNOWLEDGE AS SETS OF EXPECTATIONS | 58 |
| 2.4.1 Knowledge as a Cumulative Asset | 59 |
| 2.4.2 Knowledge as Paradigm Construction | 61 |
| 2.4.3 Coaching for Paradigm based Knowledge | 62 |
| 2.4.4 Discontinuity in Knowledge Assets | 64 |
| 2.5 IMPLICATIONS OF KNOWLEDGE TO DE | 65 |
| 2.5.1 Effects of Knowledge Discontinuity | 66 |
| 2.5.2 Implications of Knowledge to Employees | 66 |
| 2.6 DE AND GROUP CONTEXT | 67 |
| 2.7 IMPORTANCE OF TEAM WORK | 67 |
| 2.8 PROFESIONAL NETWORKS AS KNOWLEDGE BASES | 69 |
| 2.9 SPECIALIZED NETWORKS CONTEXT | 71 |
| 2.10 FORMAL AND INFORMAL WORKGROUPS | 72 |
| 2.11 MULTILEVEL ANALYSIS: CONTEXTUAL MODELING | 73 |
| 2.12 SUMMARY | 76 |
| CHAPTER 3: THEORETICAL FRAMEWORK | 77 |
| 3.0 INTRODUCTION | 77 |
| 3.1 EXPECTATIONS | 77 |
| 3.1.1 Effort-Performance Expectancy [EP] | 78 |
| 3.1.2 Interpersonal-Performance Expectancy [IP] | 79 |
| 3.1.3 Effort-Learning Expectancy [EL] | 79 |

| | |
|--|-----|
| 3.1.4 Leading-Visibility Expectancy [LV] | 80 |
| 3.1.5 Network-Performance Expectancy [NP] | 81 |
| 3.1.6 Internal-Recognition Expectancy [IR] | 81 |
| 3.1.7 Mutual-Reciprocity Expectancy [MR] | 82 |
| 3.1.8 Performance–Outcome Expectancy [PO] | 82 |
| 3.1.9 Team-Sustainability Expectancy [TS] | 83 |
| 3.1.10 Individual-Network Learning Expectancy [NL] | 84 |
| 3.2 CONCEPTUAL FRAMEWORK | 84 |
| 3.2.1 First set of Hypotheses (Expectancy variable) | 85 |
| 3.3 INSTRUMENTAL OR TERMINAL VARIABLES | 88 |
| 3.3.1 Effort Expectancy Construct (EE) | 88 |
| 3.3.2 Performance Expectancy Construct (PE) | 88 |
| 3.3.3 Workgroup (WG) | 89 |
| 3.3.4 Emotion Orientation (EO) | 89 |
| 3.3.5 Positive Comparison with peers (PC) | 90 |
| 3.3.6 Efficacious Action (EA) | 90 |
| 3.4 SIGMA ALGEBRA: LINKING PROCESS AND CONTEXT | 92 |
| 3.4.1 Sigma Algebras and Expectancy | 92 |
| 3.4.2 Measure Theory and Maximum Likelihood Estimation (MLE) | 95 |
| 3.4.3 Example 1 Demonstrating simple evaluation of DE | 96 |
| 3.4.4 Maximum Likelihood Estimation | 97 |
| 3.4.5 Example 2 Demonstrating DE evaluation from inference | 97 |
| 3.5 SIGMA ALGEBRAS AND MLE APPLICATION TO DE | 98 |
| 3.5.1 Advantages of MLE | 99 |
| 3.5.2 Disadvantages of MLE | 100 |

| | |
|--|------------|
| 3.6 MATHEMATICAL REPRESENTATION OF DE VARIABLES | 100 |
| 3.7 DE AND CORPORATE MEMORY..... | 102 |
| 3.7.1 Data Classification..... | 103 |
| 3.7.2 Value Domain | 103 |
| 3.7.3 DE Variable Mobilization..... | 107 |
| 3.8 MODELING BEHAVIOR VARIABLES | 108 |
| 3.9 SUMMARY..... | 111 |
| CHAPTER 4: RESEARCH METHODOLOGY..... | 112 |
| 4.0 INTRODUCTION | 112 |
| 4.1 EXPECTANCY ANALYSIS METHODS | 112 |
| 4.3 DATA SAMPLING..... | 114 |
| 4.4 DATA COLLECTION | 115 |
| 4.2.1 The Four Parts of the Measurement Instrument | 116 |
| 4.4 QUESTIONNAIRE TESTING..... | 117 |
| 4.5 Strategies in Analysis | 117 |
| 4.5.1 Data Preparation | 118 |
| 4.5.3 Descriptive Statistics..... | 118 |
| 4.5.4 Validation Stage..... | 119 |
| 4.5.5 Correlation Analysis | 120 |
| 4.5.6 Factor Analysis | 121 |
| 4.5.7 Regression Analysis..... | 122 |
| 4.7 PRINCIPLE COMPONENT ANALYSIS..... | 124 |
| 4.7.1 Confirmatory Factor Analysis | 124 |
| 4.7.2 Formal Specification:..... | 125 |
| 4.7.3 Requirement Specifications: | 126 |

| | |
|--|------------|
| 4.7.4 Model Identification: | 127 |
| 4.7.5 Step 3: Estimation:..... | 128 |
| 4.7.6 Step 4: Assessment of fit. | 128 |
| 4.7.7 Step 5: Model Modification:..... | 128 |
| 4.7.8 Step 6: Interpretation: | 129 |
| 4.7.9 Advantages of SEM..... | 129 |
| 4.7.10 Disadvantages of SEM..... | 130 |
| 4.8 SUMMARY | 130 |
| CHAPTER 5: RESULTS AND ANALYSES | 132 |
| 5.0 INTRODUCTION | 132 |
| 5.1 DESCRIPTIVE STATISTICS..... | 132 |
| 5.2 INSTRUMENT TESTING AND VALIDATION..... | 135 |
| 5.3 PRELIMINARY ANALYSIS | 137 |
| 5.4 MLE REQUIREMENTS AND APPLICATION | 140 |
| 5.4.1 Individual Effects of Expectancies on DE | 143 |
| 5.4.2 ANOVAs | 146 |
| 5.5 ITEM-LEVEL CORRELATION ANALYSIS..... | 147 |
| 5.6 FACTOR ANALYSIS | 151 |
| 5.6.1 Modeling with Classes..... | 156 |
| 5.7 REGRESSION ANALYSES | 166 |
| 5.7.1 Second Regression Approach | 168 |
| 5.7.2 Expectancy against Behavior for high Norms | 170 |
| 5.7.3 Expectancy and Behavior controlling for low Norms | 171 |
| 5.7.4 Variability in Expectancy: Controlling for Mixed Norms | 172 |
| 5.7.5 Regression on Expectancy with High Norm Values..... | 173 |

| | |
|---|------------|
| 5.7.6 Final Correlation Table of DE Variables | 174 |
| 5.8 MULTILEVEL MODELING | 174 |
| 5.9 HYPOTHESES TESTING | 176 |
| 5.10 STRUCTURAL EQUATION MODELING | 179 |
| 5.10.1 First DE Model on Individual, Interrelation and Behavior Factors | 179 |
| 5.10.2 Second Model Covering all the Variables in Theory..... | 182 |
| 5.10.3 Third Set of Models Detailing the four DE Variables | 187 |
| 5.11 SUMMARY | 193 |
| CHAPTER 6: DISCUSSIONS | 194 |
| 6.0 INTRODUCTION | 194 |
| 6.1 DEDUCTION BY INFERENCE..... | 194 |
| 6.2 CAUSES OF VARIABILITY IN DISCRETIONARY BEHAVIOR | 196 |
| 6.2.1 Significance of Interpersonal Performance to DE | 196 |
| 6.2.2 Significance of Effort Learning Expectancy to DE | 197 |
| 6.2.3 Significance of Leading Visibility Expectancy to DE | 198 |
| 6.6.4 Importance of Mutual Reciprocity to DE | 199 |
| 6.6.5 Individual Network Learning to DE | 199 |
| 6.6.6 Significance of Team Sustainability (TS) to DE | 200 |
| 6.6.7 The Importance of Norms in Professional Networks | 202 |
| 6.3 CONTEXT AND MULTILEVEL MODELING..... | 204 |
| 6.4 DEDUCTIONS FROM MODELING | 205 |
| 6.5 SUMMARY OF CHAPTER 6 | 209 |
| CHAPTER 7: CONCLUSION | 211 |
| 7.1 IMPORTANCE OF MATHEMATICAL MODELING AND DE CONTEXT | 212 |
| 7.2 THE IMPORTANCE OF SELF-AFFIRMATION IN PROFESSIONAL NETWORKS..... | 217 |

| | |
|---|------------|
| 7.3 IMPORTANCE OF EXPERIEMCE TO DE | 218 |
| 7.4 THE ESSENCE OF CONTEXT AND DE | 221 |
| 7.5 RECOMMENDATIONS..... | 224 |
| 7.6 FUTURE WORK..... | 225 |

List of Figures

| | |
|---|-----------|
| Figure 1: Modified Organizational Structure, adopted from Burke and Litwin, (1992). | 21 |
| Figure 2: Motivational sources, Bennet (1981). | 26 |
| Figure 3: Maslow's Hierarch of Needs (1968)..... | 29 |
| Figure 4: Lawler Expectancy Model (Lawler, 1973)..... | 39 |
| Figure 5: Demonstration of Employee Fulfillment of Expectations and failure rate, over time | 60 |
| Figure 6: Knowledge as a paradigm construct..... | 63 |
| Figure 7: Units clustered around means | 75 |
| Figure 8: DE Conceptual Framework..... | 87 |
| Figure 9: Discretion Effort Framework with suggested variable scoring components..... | 91 |
| Figure 10: Illustration of a DE Model by Mullins (1985) | 101 |
| Figure 11: Overview of metadata registry (ISO 1995). | 105 |
| Figure 12: Model Extension through schemas..... | 110 |
| Figure 13: Measurement and latent representation of variables | 110 |
| Figure 14: Graphical Distribution of DE to demonstrate the close to normal PDF..... | 141 |
| Figure 15: General measure of Expectancy Variables..... | 144 |
| Figure 16: Trends in DE ($N=211$) | 145 |
| Figure 17: First Model | 180 |

| | |
|---|-----|
| Figure 18: Second DE Model | 184 |
| Figure 19: Third DE Model | 188 |
| Figure 20: Fourth DE Model | 189 |
| Figure 21: Second Level model illustrating the full VIEA model..... | 192 |
| Figure 22: Proposed Model | 208 |
| Figure 23: Initial VIE Model testing..... | 251 |
| Figure 24: Initial VIEA Model testing..... | 252 |
| Figure 25: VIEA Class B testing | 253 |

List of Tables

| | |
|--|-----|
| Table 1: Illustration of relations between iIntellectual and social aAssets | 5 |
| Table 2: Value Domain..... | 106 |
| Table 3: Example 1 demonstrating data scoring for DE..... | 106 |
| Table 4: Example 2 demonstrating the actual data scoring on expectance variables | 107 |
| Table 5: Example 3 definitional process based on value domain | 107 |
| Table 6: Sector groupings | 133 |
| Table 7: Personal level descriptive statistics | 134 |
| Table 8: Work level descriptive statistics | 135 |
| Table 9: Initial Anova detailing the differences in the DE variables..... | 142 |
| Table 10: Sector mean DE differences (t) values | 143 |
| Table 11: Correlation results including expectancy and behavior..... | 147 |
| Table 12: Correlations at work level..... | 149 |
| Table 13: Averaged values correlations of all the scales | 151 |
| Table 14: Personal Level 2 factor solution | 152 |
| Table 15: Work level factor solution | 154 |
| Table 16: Behavior/Instrumental factor solutions..... | 155 |
| Table 17: Class A (VIE) | 158 |
| Table 18: Class B (VIEA)..... | 159 |
| Table 19: Class C (VIE) | 160 |

| | |
|---|-----|
| Table 20: Class D (VIEA) | 161 |
| Table 21: Four factor solution for class 1 and 3 variables | 163 |
| Table 22: Factor solution for all items | 164 |
| Table 23: Regressions with EP, MR and TS | 168 |
| Table 24: Alternative regression method | 169 |
| Table 25: Combined regression results | 170 |
| Table 26: Summarized results of regression | 170 |
| Table 27: Regressions indicating the significance of norms | 172 |
| Table 28: Changes in EO and EA with norms | 173 |
| Table 29: Partial DE with norms | 173 |
| Table 30: Inter-construct correlations between DE variables | 174 |
| Table 31: Multilevel Analysis | 175 |
| Table 32: Macro Level Multilevel Analysis | 176 |
| Table 33: R^2 and t Values of first model | 182 |
| Table 34: R^2 and t Values of second model | 186 |
| Table 35: R^2 and t Values of third model | 190 |

CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

1.0 INTRODUCTION

1.1 DISCRETIONARY EFFORT

Discretionary Effort (DE) is an individual's free choice in which intrinsic motivation is operationalized. DE is thus an unsolicited effort as it is derived from an individual's extended desire to engage in an activity because one enjoys, is interested and willing to append an extra effort on the activity. DE can further be defined as a surge in performance because it is an effort that goes beyond work-role expectations. The primary aim of this research was to investigate a DE framework among networked professional employees, mostly managers and specialists who were either co-located or virtually located within and across sectors.

Concepts surrounding DE became more pronounced around the early 1960s when need for better business performance strategies was on the increase. Earlier work on DE focused primarily on conceptual framework development, resulting in an increased present-day need for empirical research. This is largely encouraged by the social and technological advancement, as well as increased business competition that now require a more practical, integrated and process oriented approach. Flexible and flatter organizational structures, which encourage broad employee participation in decision-making, are all part of this need. It has been generally acceptable in management literature, that in order to survive in a dynamic environment, organizations need individuals who are willing to exceed their formal role requirement (Barnard, 1938; Katz, 1964; Katz & Kahn, 1978).

While DE is manifest in artifacts such as organizational citizenship behavior (OCB) and stewardship, which are constructs of enhanced performance actions, the current research suggests that DE can further be developed and reinforced around other current business

concepts. These include knowledge-based notions due to integrated work environments, value creation and service economy theories which; have been noted as performance drivers, and proven bases for sustainable competitive advantage of firms (Grant, 1996; Davenport, 1998; Narver & Slater, 1990; Deshpandé et al., 1993; McNaughton, Osborne, & Imrie, 2002). It is posited in the present research that performance is thus a function of DE in what can be presented as $DE = f(x_1, x_2, x_3, \dots, x_n)$. The components x_1, \dots, x_n are performance variables which arise in work environments.

When staff attitudes are rooted in ‘doing their best’, according to Graen (1969), the result is a gain in performance. Performance itself is multidimensional. In addition to before mentioned artifacts, constructs such as in-role behavior and organization norms are included among a variety of domains (Frese, Fay, Hilburger, Leng, & Tag, 1997; George & Jones, 1997; Konovsky & Pugh, 1994; MacKenzie, Podsakoff, & Fetter, 1993; Moorman, Niehoff, & Organ, 1993; Werner, 1994). Thus, performance variables including the predominant motivation values, role perception and other influencer factors, such as personal and interpersonal expectations and norms, are core components of the current research.

1.2 PROBLEM STATEMENT

Considerable research attempts have been conducted in the area of expectancy to explain DE, including motivational approach to peer assessment (Barry, Pamela & Larry, 2009), and other work related studies. However, little or nothing point to DE in an *integrated work environment* context using professional-networks¹ (part of social networks), and the self-affirmation continuum which is critical for protecting the individual’s self-image. Yet, it is a common understanding that human relations, the social component, add an important dimension to business, along the formal organizational design. This, pro-social organizational component has been noted to support and uplift the wellbeing of organizations (Brief & Motowildo, 1986). Previous research on motivation and DE tended to focus exclusively on

¹ Professional networks are simply informal networks formed by individuals for sharing ideas, values and certain knowledge. These include virtual professional networks (geographically dispersed networks) including public ones that use social software such as LinkedIn and Linux COP.

either individual (Smith, Organ & Near, 1983) or group (George & Bettenhausen, 1990). However, contextual analysis developed specifically in social sciences, which focuses on the effects of the social context on employee behavior of DE, are largely overlooked. Context in this case, comprises the most relevant dimensions suitable to describe the actual situation of the worker in relation to DE. Recently, Hitt et al. (2007) further noted that, although the persistent issues in management studies mostly involve multilevel phenomena, most management research use single level analysis. Thus, apart from including the self-affirmation construct, this research further investigates a wide range of business artifacts and strategies necessary for DE in an integrated work environment.

The following sections illustrate the significance of these assertions and how, these artifacts and theories are important DE premises. A brief explanation of service, value creation and knowledge concepts are first provided to give an overview of how they are associated with DE. A further discussion of DE theories is then presented together with the research questions, followed by the rest of the study.

1.2.1 Discretionary Effort and Service Concepts

Business focus, especially in industrialized countries has been rapidly shifting from a production-based (industrial) position, from manufacturing to service orientation. Service, in conversional economics literature, is defined as intangible goods with the focus on *people interacting with people and servicing the customer* (Ifm & IBM, 2008; Wolfi, 2005). Consequentially, new work relations and ways of adapting business to changes have emerged. For example, it is becoming increasingly important to bundle products with services, which is referred to as *servitization*. For this reason, most tangible items such as computer hardware products now contain a service component. Obviously, such developments are opening up more areas of human involvement at different stages of business processes that require significant levels of DE.

Unlike physical products, services are intangible and therefore, difficult to communicate, especially since they tend to be interpersonal. The benefits derived from services, tend to be

associated with feelings and emotions. For instance, clients or employees who feel emotionally attached to a firm are likely to expend extra effort and less likely to leave their jobs. Services can therefore, be an important criterion by which extended performance, and hence DE be measured (Fitzsimmons & Sullivan, 1982). The perception of DE in this research is not just a mere effort, but one derived at the cutting edge of the business process, which creates value for an individual, customer and the organization at large.

1.2.2 Value Creation and Discretionary Effort

Value creation, including the value of a customer is often linked to the service component of business. Thus, by increasing the human element, the social aspects in business transactions, exercising DE becomes broad. Recent studies revealed that an estimate of 80% of the market value of the average S&P 500 company constitutes intangible assets (Fleming, 2007; CEC, 1998b; Ehrlich, 1999). This is particularly beneficial, to companies that want to account for the value of service, including unsolicited employee efforts, and how much business value it adds to their organization. It could be partly, why many renowned manufacturing companies including IBM & General Electric (1998) are redefining their organizations as service industries.

Servitization readily creates space for connecting and integrating DE and the tangible aspects of goods. Even though the intangible part of goods (soft) can be defined in terms of both the effects of technology and the human element, the latter poses as a strategic source of competitive drive in the current economy. Table one (1) below categorizes the tangible and intangible assets.

| <i>Type of Capital</i> | <i>Type of Asset</i> | <i>Examples</i> |
|------------------------|----------------------|--|
| Financial | Tangible | Monetary Investment; Land and Buildings; Equipment |
| Human | Tangible | Manual Labor; Repetitive Tasks; Low-Tech Skills; Process Execution |
| Intellectual | Intangible | Process Generation; Best Practices; Experience; Intuition; Wisdom |

| | | |
|--------|------------|--|
| Social | Intangible | Internal Networks; External Relationships; Communities of Practice; Goodwill; Shared Values; Internalized Standards. |
|--------|------------|--|

Table 1: Illustration of relations between Intellectual and social assets

Source: Carayannis, E.G. "Measuring intangibles: managing intangibles for tangible outcomes in research and innovation" *Int. J. Nuclear Knowledge Management*.

Reastogi (2003) noted that, the ultimate test of value creation is whether customers are willing to pay for a firm's products and services under conditions of wide competitive choices available. Other researchers highlighted the positive influence that intangible assets add to performance and competitiveness of firms (Narver & Slater, 1990; McNaughton, Osborne, & Imre, 2002).

1.2.3 DE and Value-Congruency

Similarities between individual and organizational values appear in literature, in the context of value-congruency. Value in this view, is defined as a persistence belief requiring that a specific mode of conduct or end-state of existence be individually or socially preferred to an opposite or converse mode of conduct or end-state of existence (Rokeach, 1973). Congruency is the degree to which individual and aggregate (organizational) values are shared. Dolan et al. (2004), Diez-Pinol, Fernandex-Alles, Martin-Prius and Martinez-Ferro, (2004) pointed out that, organizational values are related to organizational performance. Kirkman & Shapiro (2001) further noted that, such values are also likely to conform to individual performance values. This implies that individuals who share values with an organization are likely to perform highly and readily offer their DE. Similarities can further be expressed through the value that individuals (at personal level) place on *expectancies* and what they perceive their firms (at organizational level) hold.

Attitudes and values, if shared amongst people in different sectors, would encourage cross sector collaboration. Individuals who hold similar values are likely to share common aspects of cognitive processing and would have a common method of interrelating events Shein(1985). Congruency therefore, affects the quality of interpersonal interactions and

researchers have indicated that it leads to job satisfaction and organizational commitment (Maglino, Ravlin & Adkins, 1989). Convergence of these values can result in stronger network-team formation, team cohesion and better chances of fulfilling expectations, henceforth improving discretionary behavior.

1.2.4 Discretionary Effort and Community of Practice (COP/s)

DE is also present in common business practices; were employees use their additional time and effort to participate in organizational online platforms, known as communities of practice (COP/s). Other pervasive and non-organization specific professional networks such as LinkedIn, Plaxo and Linux-Online are also common. Although, direct measurement is difficult, the value that these networks create in individuals and organizations, their effects on business and individual knowledge elicitation is vast. Modern information technology and the knowledge it moves, stores and makes available, has caused a permanent change in work, skills, products and the economy. Researchers have posited further that denser and resourceful knowledge networks create knowledge climates for individuals, relevant to outcomes including individual and team performance (Baldwin, Bedell & Johnson, 1997; Mehra, Kilduff & Brass, 2001), organization *mentoring* (Higgins & Kram, 2001) and power (Brass, 1984).

Thus, although the core purpose of this research is to establish and determine a DE framework in dynamic (integrated workplaces) workplaces, the business context in which DE operates is examined because it plays an increasingly important role in the workplace. For instance, the increasing importance of virtual collaborations, especially in corporate global business, is beneficial to DE execution. The main reason being that effective knowledge flow leads to quick fulfillment of needs and expectations both at individual and organizational levels. Thus, in order to achieve efficient flow of knowledge and business transactions, the number and nature of technologies that needs integration into business competencies become immense. This in turn highlights the complexity of what firms have to deal with, which directly or indirectly affects DE delivery.

1.2.5 Discretionary Effort and Knowledge Theories

DE can also be associated with fundamental theories that underlie a knowledge-based economy. This, firstly, helps to expose DE to important pedagogical processes including procedures such as coaching and training. Secondly, it provides the motivation to exploit value-added benefits and utility embedded in the knowledge components of business. Such efforts include increasing of organizational intellectual property; human knowledge, “including know-how as of skill” that is critical to innovation and essential guide to adaptation. Furthermore, the change from one form of economy, based on information, to the current that is predominantly reliant upon knowledge², entails that, many factors of workplace behavior pertinent to DE are considered. Some of these factors are subtle but can be understood by modeling knowledge itself.

Individuals have different perceptions and interpretations of information and knowledge and use these according to how they want to develop competencies. Therefore, the ways in which they come to make discretionary decisions is dependent upon how much portions of knowledge they have gathered at that particular time, situation and place. DE is certainly a knowledge-dependent construct; it is knowledge that provides the necessary guiding principles and professional advantage in business.

Exercising DE can only be effective if some form of knowledge or expectations are derived about a particular task and the environment in which it is executed. Behavior, including DE is thus, contextual (Borman & Motowilldo, 1993) and requires well-informed decisions (coordinated knowledge), which in turn help to shape expectations. To survive in a dynamic environment, leaders must thus, clearly understand both employee and organizational expectations and ensure that through this understanding, employee’s needs are subsequently

² Knowledge can be operationalized as the ability to enable action in an organization (e.g good decisions, appropriate behavior). It compliments information, which provides the context for and meaning of action (e.g criteria for decision and specialization of work).

realized (Tan, 2000). When employee's expectations are met, they (employees) are likely to fulfill customer expectations (Tan, 2000).

1.3 IMPLICATIONS OF EXPECTANCIES TO LEADERS

Business leaders must understand that when high work expectations are met, individuals and organizations become more competitive. Expectations that are too high or too low can, on the contrary lead to low anxiety (Johnson, 2004) and diminished performance drive. Through employee desires to perform and the need to meet expectations, competencies are subsequently developed. However, competencies do not exist separately from communities (Cold, 2006) that develop them. By erecting concrete communities with effective communication structures, competencies emerge. What is also important is the dynamic nature, referred to as continued interpretation of expectations these environments provide to business activities.

Expectations can be refined through work-teams and business climates, created by interpersonal interactions. An essential aspect of business in a highly integrated economy would be to measure expectations through such individual interactions. For example, the sharing of ideas and knowledge about company rewards, perceived leadership support and the value of team efforts, assist in educating new and current employees about specific business expectations and requirements. It also motivates employees to acquire knowledge quicker and pursue perceived benefits. In addition, it would generate an intrinsic motive for employees to expend their effort at no cost at all. It is therefore, imperative for leaders to provide employees with the necessary tools, to facilitate quicker transfer of knowledge.

DE, like other organizational behavior concepts, is a complex topic and its study requires techniques that transcend disciplines including philosophy, psychology, mathematical statistics, and technology. Without considering broader issues currently defining business and expanded measures, encapsulating especially the process aspects of DE would shrink its value. Mullins (1993) noted that, the study of organizational behavior could not be undertaken in terms of a single discipline.

The intent of this research is therefore, initially, to establish discretionary framework rigorously. It contends first that, because DE is a potential force deeply rooted in the employee's mental faculties that involve both intrinsic and extrinsic motivations, emotions and aspirations, it requires mediums (instruments) to express itself. It is therefore, highly dependent on internal preparedness and external circumstances. Secondly, the context within which it operates is significantly important. Hence, the parameters of DE encompass other notions that enrich its meaning and strengthen its effectiveness. The current research thus, presents divergent but highly connected areas of business processes through which DE can effectively develop. It subsequently presents a test-bed for generalizations and provides room to develop ideas from the first principles while suggesting important areas of expansion. Obviously, there could be other important business factors such as conscientiousness³, sportsmanship⁴ and talent-management that may influence DE significantly but the ones covered here, are most necessary for this research.

1.4 SCOPE OF THE RESEARCH

This research aims at investigating the fundamental concepts of DE and expanding these into meaningful theoretical, methodological and practical constructs directed at meeting some of the current business performance challenges. It then attempts to establish DE based on simple but rigorous discretionary behavior and mathematical constructs. The current research covers some aspects of global economical factors and mathematical rationale deemed necessary for enriching the process of realizing and executing discretionary force effectively. It further suggests a link between DE and measure theories, which is necessary for exploring the scalability of the DE framework with respect to its future utility.

³ Conscientiousness consists of behavior that go beyond the minimum requirement such as not taking breaks at work (Podsakoff et al., 1990:115)

⁴ Sportsmanship is the willingness to tolerate circumstances, which are less than the ideal without complaints or petty grievances Organ, 1988.

It acknowledges, from other researchers work and its own contribution on the extended DE model, that DE can be generalized. Yet, it contends that more focus be directed towards maximizing the usage of such models and that the results must readily feed into revised future frameworks. It then demonstrates how DE can be instituted in different clusters or platforms of specialized networks within and across sectors. This highlights the fact that, with changing business strategies and technological platforms, opportunities for developing and leveraging the quality of DE constructs follow. Due to interrelations of discretionary behavior with different aspects of business elements, which make the study broad, various mathematical and statistical constructs are used. This helps, firstly to align previous theories and the current assertions with sound scientific meaning. Secondly, it helps to match the underlying theories surrounding DE with simple but powerful research methods and tools.

Some limitations of the current research arise from: (i). A focus on individual discretionary behavior at work, and not general behavior. (ii). An explanation of individual behavior rather than control. (iii). Objective sources of data mainly from managers and specialists. (iv). No frustrated behavior or behavior out of control. (V). This research is primarily focused on developing a DE framework in an integrated work environment. As such, concepts are discussed with a view of deriving and supporting DE constructs based on the actual work experience, and not on individual exploration of these concepts.

Chapter 1 discusses the first principle of DE and how it can be developed, through understanding the expectancy variables. It includes theories from different researchers and scholars such as Maslow (1968) who provides further insights in establishing concepts from which DE can be derived. Chapter 2 discusses advancements and latest development in DE. It then incorporates the current ideas and thinking and how the DE concepts fit into modeling. This chapter's other main objective is to explain integrated work environments in which DE can be encouraged. Chapter 3 details a conceptual model and how this can be further developed to accommodate other DE ideas. Chapter 4 deals with the methodology that was used to obtain and process the primary data. Chapter 5 presents the results, reported in stages of increasing complexity. Chapter 6 gives an interpretation of the results and its discussion.

Chapter 7 provides the conclusion, offers recommendations and suggestions for future research.

1.5 RESEARCH MOTIVATION

The main motivators for this research are attributed to, first, the lapses and achievements in expectancy theory. Second, the business affinity and demands for enhanced work performance. Third, to the need for companies to recognize current economical trends and changing business orientation towards knowledge-based activities, service-economy and the imminent calls for innovation which are prime reasons for discretionary behavior.

Since the explicit illustration of expectancy theory by Vroom (1964), substantial amounts of research and a great deal of effort have been put into generation of diverse methods of sampling data (Behling & Starke, 1973; Hememan & Schwab, 1972; Locke, 1975; Miner & Dachler, 1973; Mitchell, 1974; Mitchell & Biglan, 1971), in attempts to construct and predict motivational force (DE). From these efforts, three general observations often arise:

1. The assumptions of expectancy theory (the root of DE), like any other expected utility theory are questionable and therefore, open to scrutiny and discussion. They are often relative to human psychological conditions. Research has often focused on the psychological aspects of individuals but did not adequately address the role of interaction with other individuals in influencing values of expectations (Hirokawa & Scheerhon, 1986). When taken into the context of a knowledge-based economy, which builds on immense collaboration and teamwork, influencing expectations through DE becomes even more complicated and further delineated from the existing literature. Collaboration and teamwork are critical for quick transfer of knowledge, which can guide organizational success. Sproull & Kiesler (1991) noted that teamwork, especially those that are cohesive in nature drive competitiveness. This is largely because for employees to access knowledge and exercise DE readily, sharing of the needed concrete knowledge through collaboration and team formation is critical. A diverse but rich knowledge base created by the current knowledge-based world economy provides an

important platform for interaction through technologies such as virtual networks. Virtual networks are simply geographically dispersed associations of people who share similar values and are united in purpose, share ideas in order to find common solutions. Collaborations in virtual networks can facilitate understanding of certain expectations and exercising of DE. Through a larger network, a bigger knowledge base can be established from which DEs can be readily constructed.

2. Earlier work on DE revealed that confusion occurred over conceptual and methodological issues (Lynch, 1979; Mitchell, 1977). This often arose over the additive validity of VIE or whether they should be replaced by weighted averages rule. This implies that, understanding DE that is executed in much more complicated environments such as virtual platforms would require even more advanced research techniques including strategies such as structural equation modeling. Clarity in the implementation of *probability theories* associated to DE need to be addressed (Mitchell, 1977). DE is an event-based process that requires a clear representation of the underlying motivation variables. Lack of clarity is partly the cause of delayed synergy between theory and practice, which consequently slows translation of concepts into useful processes. It seems, therefore, that there is a missing link between the content and the process aspects of DE. For example, little research efforts point to the DE systems and how they can be achieved. Despite its importance, most research approaches have relied on insufficient data and functions to demonstrate the practical validity of DE.

3. On the process front, researchers have often used limited statistical strategies to generalize the expectancy construct. Less attention is paid towards broader issues of the effects of cross subject analysis and sound scientific procedures that can ultimately lead to clear categorization, storage and usage of the expectancy variables in the most comprehensive and efficient ways. Yet, this is what the process aspect of expectancy and hence, DE must strive to gain.

4. Despite the questionable assumptions and confusion in 1 and 2, expectancy formulations, nonetheless, do credible work at predicting motivation (Garland, 1984; Garland, 1985; Heneman & Schwab, 1972; Loke & Henne, 1986; Mitchell, 1974) and therefore, provide a concrete base over which further research on DE in integrated work environments can be obtained.

Other researchers, Pfeffer (1993) & Perrow (1994), further strongly argued that, paradigm development on organizational behavior is still at a low level, which reflects a lack of consensus on research issues. It has been noted that fragmentation of the field has stalled advancement, especially in integrating the current performance requirements and motivation theories thereby blocking evidence of where expectancy models (DE) stand in finding principles and generalizations (Pfeffer, 1993). Among the suggested modification to expectancy, based on subjective expectancy utility (SEU) are, focus on individual differences such as self-esteem (Pelc & Midlarsky, 1977), expectations of personal efficacy (Bandura, Adam & Beyer, 1977) and locus of control (Bauman & Fischer, 1985). Additionally, situational factors are necessary for executing DE, which include locus of attribution, and self-focus. Environmental situations are also necessary and considered as prelude to the completion of an action in the DE process (Carver & Scheier, 1982).

It can further be argued that:

5. Since the expectancy theory is based on probabilistic constructs, with reference to expectations and expected utility theories, it can well be applied in the uncertain and complex present economy. The dynamic nature of the current business processes is therefore, a precursor to extensive DE exploration. This highlights the reason why initial theories such as theories X and Y seem to be gaining momentum again.
6. The interactive complexity created by work networks, especially the virtual and the latest theories about the knowledge worker and knowledge-based-economy, can be appropriate steps towards establishing a dynamic environment that is DE charged.
7. Considerable research has shown that attitudes and norms account for significant proportion in human behavior (Ajzen & Fishbein, 1973). However, there is little evidence on how environmental factors cause variance in motivational force (DE). Along this line of reasoning, this research attempts to explore such factors, including organizational influence or norms or perceptions on DE, type of work location (co-location and virtual location), and profession.
8. Last, the accounting and financial reporting systems have failed to keep up with the changing nature of value creation, because they often omit the human element. This was earlier noted by Lev (2001), but still very little research has been conducted to account for the

influences of the human element in these systems. The study of DE can help to highlight some of the important facts that may lead to adequate financial reporting systems especially as it deals with the intangible human asset of business.

1.6 ORGANIZATIONS AND DE CHALLENGES

Organizations realize that expectations, when they are met, lead to improved productivity and DE (Johnson, 2004). Employees, however, hold divergent views on what their organizations are currently doing about these expectations. Some employees highlight a lack of insightful knowledge about DE though they were willing to expend it while others felt less inclined to exercise it at the present time than they were before.

In one of the research reports, Kowalski (2003), noted that, with the current work environment being described as “...*one of disillusioned employees, unhealthy or non-existent relationships between employees and their employers, high stress levels, a lack of security and little or no trust*” (Entwistle, 2001:17), employees felt less likely to express DE. This, in part highlights the rapid change in the work landscape from co-location to include virtual location. But it may also reveal that employers expect more effort and rapid employee skill development, more employee autonomy and non-long term binding contracts which partly describes a knowledge worker concept. Yankelovich & Immerwahr (1983) found that, by the early 1980s, only 23% of the workforce surveyed, offered a high level DE to their jobs. About 44% of the workforce perceived their jobs as low discretion, admitting to only doing what was necessary to keep their jobs, whilst 75% of the respondents agreed that they could be more effective in their workplace than they currently were.

A research survey (Blessing,2005) of 990 respondents stated that 70% of employees interviewed, indicated that they planned to stay with their current organisation in the near future. However, only 21% of these indicated that they offered their full DE to their current job (Blessing, 2005). Kowalski (2003) noted that younger workers surveyed indicated that they would rather work for themselves than for an organization. These trends indicate that

organisations are either losing their DE and intellectual capital which could have been willingly offered by employees or were not doing much to harness it.

The Corporate Leadership Council survey from 50,000 employees across 59 companies revealed that only 11% exhibited very strong commitment, 13% showed strong commitment while 76% were moderate and would not take responsibility (Needham, 2005). These findings clearly show that there is a gap between what organizations wanted to achieve in terms of discretionary behavior at work and what they apparently had.

1.7 DEMAND FOR DISCRETIONARY BEHAVIOR

Demand for DE is particularly high in industries that have close interface and interrelationships with customers such as the financial and hospitality industries such as Ernst & Young, Edwardian Hotels and Standard Chartered Bank (April & Katoma, 2009). Nevertheless, even where close interface is absent, businesses have tended to expand the service component as mentioned earlier in this chapter. Increased transformation from manufacturing towards services means that, the human effort in value creation is becoming more important. Value creation includes, maintaining customers because of constructive customer service that may have risen from the employee's discretionary behavior. Moreover, emotionally satisfied customers who are extremely satisfied with the product and services provided by a company would have a strong emotional attachment to the company.

Apart from significantly reducing physical interpersonal interaction through increased communication and virtual collaborations, mediation and knowledge sharing through online participation are crucial parts of knowledge-value creation and performance enhancers, which lead to DE.

Since business growth is a process driven exercise, business leaders are becoming recognizant of the need to strive for continuous improvement towards business excellence by investing heavily in work processes and practices (Tan, 2000). Processes involve systems, channels and appropriately defined measures for delivery, control, logic and deduction of meaning (e.g.

inference). This research therefore, further highlights how DE processes can be instituted through logically connected processes.

1.8 APPLICATION OF EXPECTANCY

Expectancy theory is the most well known foundation of DE and is used in many different analyses of phenomena that include social attitudes, decision-making processes and causal attributions (Feather, 1982). A review of literature shows a positive support for the theory (Garland, 1984; Garland, 1985; Heneman & Schwab, 1972; House & Shapiro, 1974; Kennedy, Fossum & White, 1983; Locke, 1986; Mitchell, 1974; Murray & Gerhat, 1998; Schwab, Olian-Gottlieb & Heneman, 1979). Of all these cases, the prediction abilities are the most used. Many scholars cite artifacts such as leadership, organizational citizenship behavior (OCB) and stewardship concepts as types of discretionary behavior (Organ, 1988; Van Dyne, Cumming & Parks, 1995; Borman & Motowildlo, 1993). This is primarily to highlight the growing importance of DE.

Other than focusing only on the expectancy principles, Fishbein & Ajzen (1975) presented an extension of expectancy through the theory of reasoned action. The extension incorporated both individual differences in behavior and environmental forces as players. Popper (1959) noted that, when theory does not perform well, it could be altered to make it effective. To improve accuracy and predictability, more variables can be added to the existing model. Another strategy is to narrow conditions to which the theory applies. However, accuracy of measurement is attainable by reducing the variables in the model to the most informative ones. The other method is to refine the target research sample. Refinement is targeting a different research sample or respondents that are likely to provide different *context and inferential details* (Popper, 1959). Researchers have, nonetheless noted that, although expectancy models continue to receive widespread and overwhelming support, their contribution to variance in overt behavior often accounts for only about 10% (Campbell, & Pritchard, 1976; Kopelman, 1977; Mitchell, 1974, Wahba & House, 1974).

The different views proposed by researchers in dealing with expectancy suggest that more focus should be directed towards testing of the DE framework. These views also highlight the fact that, expectancy, when applied in business processes should be well defined or contextualized. This is because, although the fundamental expectancy model remains valid, influencer factors play an important role in the rapidly changing business strategies. Thus, research attempts at DE should be wide enough to capture the necessary concepts and business components to make meaningful conclusions. Because of the divergent views, especially on methodology, it would be appropriate to approach research on expectancy with a variety of strategies.

1.9 RESEARCH QUESTIONS

1. Are integrated work environments appropriate premise for investigating Discretionary Effort? If so, then what expectancy models and model testing strategies are necessary?
2. What measures can facilitate translation of discretionary concepts into processes in dynamic and volatile business environments?
3. How can organizations exploit business strategies to determine and foster Discretionary Effort?

1.10 IMPLICATIONS OF CURRENT RESEARCH

This research, by using a wide range of theories and empirical data from various sectors, proposes a framework based on diverse theoretical and practical foundations. The significance of this research direction is to provide a framework that is, firstly, generic, and

second, a framework that is sound in that past theories are often prologue to possible discoveries. Thirdly, it aims to link DE to the current economical tenets such as servitization and knowledge-based economy, which draws in the practical, current and actual context of business processes. This is in line with Rand's (1967) assertion that, integration of theories and practice at the widest level possible is essential to understanding reality.

As part of knowledge management tools, specialized networks (eg professional networks) provide strategic spaces and capabilities for discretionary effort delivery. However, rapid changes in management practices, mainly shifting towards manager-leadership, the subtle change of business operations to service orientation and the rapid transformation of social software, pose challenging problems. Firstly, the rapidly changing work landscape requires new leadership roles. Secondly, improved measurements are needed to understand the value of managing business entities such as employee *clusters or units/teams*.

This research is also cognizant of the fact that the strength of an organization cannot only be measured from the employees' abilities, skills and their expectancies alone, but also with systems, especially in which information flows. Additionally, in attempting to derive meaning by dealing with behavior constructs, which are often hypothetical, this research suggests that DE be given an epistemic status through which knowledge dispersion such as coaching can be established. Unlike true variables measured with errors, which are presumed to exist (be it ontological), hypothetical constructs have an exclusively epistemological status (Messick, 1981). According to Cronbach (1971), a construct is defined as an intellectual device through which one can construe events. Thus, constructs are in fact concepts by which basic networks of theoretical laws can be established (Cronbach & Meehl, 1955). Thus, elements of learning and aspects of knowledge creation and dispersion are presented as key components of DE constructs. These are reflected, especially at the basic level of DE that involves how workers mobilize DE variables.

1.11 LITERATURE REVIEW

1.12 DE AS AN ASPECT OF ORGANIZATIONAL BEHAVIOR

Discretionary Effort (DE) is just one aspect of organizational behavior and yet it is needed essentially, in every area of the vast structure of any organizational activity system. To effect performance and consequently DE, organizations rely on their structural orientation. Organizational structure must therefore, be designed to achieve greater performance levels. A reference to typical elements of organizational structure is presented in the Burke & Litwin (1992) organizational performance model (figure 1). The model presents an organizational activity system and illustrates the DE component. It demonstrates: (1) the importance of context in DE research and, (2) how levels within the system structure are interrelated and can strengthen or collapse to flatter systems as organizations transform. The visual portrayal further helps to explain some of the essential components such as the environment, leadership, culture, systems and motivation factors that are critical to DE formation.

1.12.1 Organizational Structure and Functional Components

Organizations typically constitute hierarchical structures through which business processes flow. Processes are often modeled from simple business elements, with the aim of explicating knowledge, that is again ploughed back into the process, and hence the bi-directional interrelationships in figure one (1). Bi-directional interrelationship simply indicates that knowledge can flow either way, which in discretionary behavior demonstrate reciprocity. This occurs in both structured and unstructured organizational processes; especially where creative learning environments exist to enhance performance. Businesses operate through knowledge-based activity systems (Engestron, 1999). These activities are driven by common motives based on collective needs and skill (Engestron, 1999). Hierarchical structures ensure management direction, order, and the route to achieve specific business goals. In order to achieve goals, activities are placed into categories, namely, the planning phase and the action stage (Kuutti, 1997). Action emanates from an orientation and constitutes the execution

process. Repeated exercising of action leads to better execution, but can also render the planning stage obsolete. In such cases, actions collapse into operations because of routinization. Operations are the easiest and most automated. The role of leaders is thus to create organizational environments that help employees fulfill their social needs, through the meaning, that routinization takes out of their work (Cohen, Chang & Ledford, 1997). In self-managed settings, such as virtual networks, leaders should provide individuals with clear task boundaries within which discretion and knowledge sharing can be exercised (Slocum & Sims, 1980).

An important point to note is the dynamic nature of the components such as culture in these organizational structural levels. Components interact in ways that when learning or value transformation occurs, those in a higher-level collapse into lower levels. On the contrary, components can unfold to higher levels if changes requiring increased hierarchy and complexities arise. Within the activities, value paths should emerge, to ensure that activities are oriented towards value creation (exploration of knowledge). In order to integrate activities within the value creation process, activity modeling is necessary. It is the importance and significance of the relationships between components that determine performance and ultimately DE.

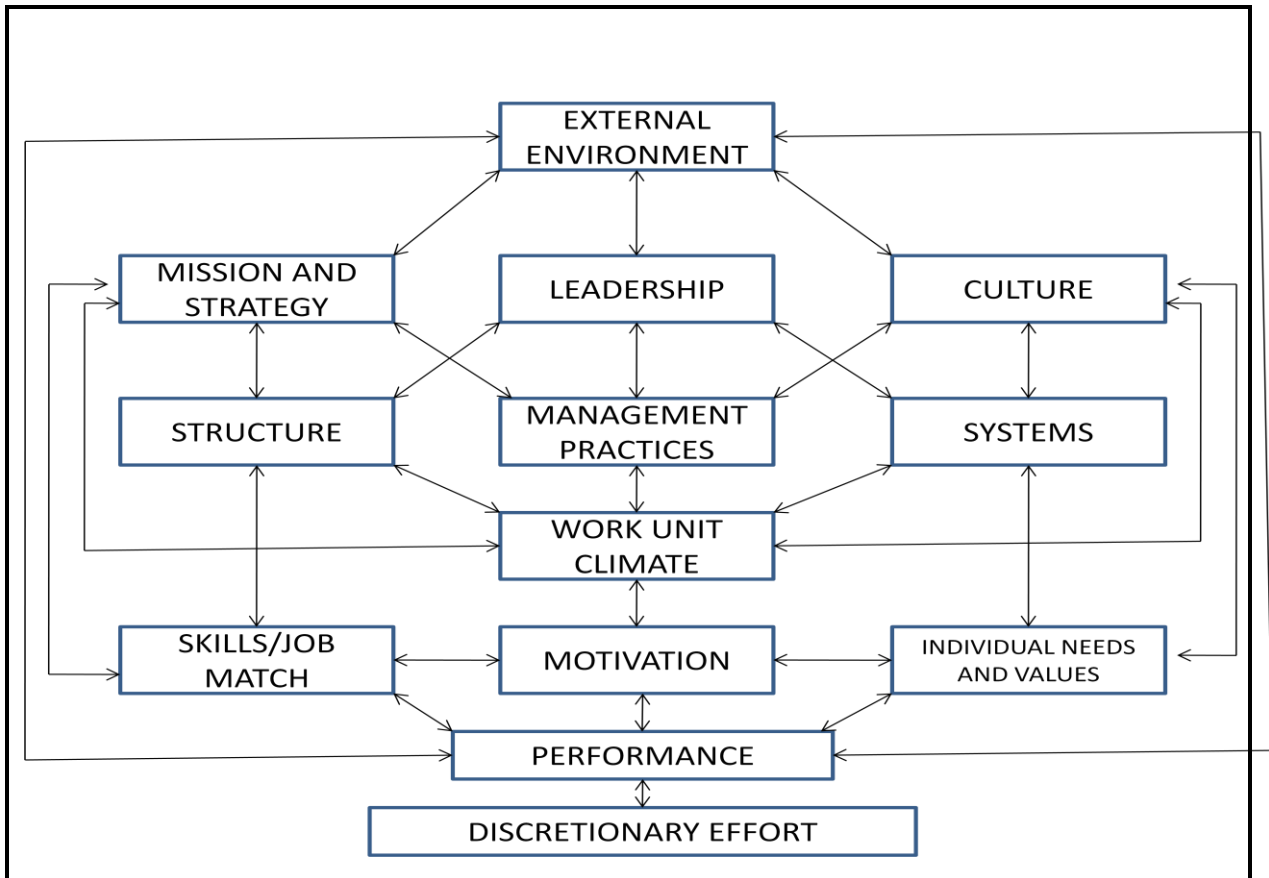


Figure 1: Modified organizational structure, adopted from Burke and Litwin, (1992).

The model above illustrates organization performance and change through organizational functional levels (Burke & Litwin, 1992).

1.12.2 Organizational Process Modeling

The model figure 1 initially depicted the flow of information and functional interrelations that lead to performance. The inserted “Discretionary Effort” component in figure 1, illustrates that DE and performance draw from each other. Relationships between the components indicate that organizations are fluid or dynamic systems with interdependent social factors. It has to be noted however, that DE, as mentioned earlier, is an individual’s free choice in which intrinsic motivation is operationalised. The representation in figure 1 does not thus physically position DE but simply depicts relationships in social structures, which may motivate one to

exercise DE. For instance, discretionary behavior is one aspect of leadership qualities when explained in terms of an organizational citizenship behavior context. Yet, leadership and DE itself seem to be further apart as depicted in figure 1. This highlights how social components can be so closely related, yet they can appear to be distant in the organizational structure. Thus, DE variables could be interacting in more complicated dimensions with other factors than what is visible. Figure 1, further demonstrates how organizational structures have capacity to achieve greater agility, malleability and synergy. Value creation, innovation and competitiveness are attainable through trade-offs in such synergetic occurrences. This is, however, unlikely to happen in rigid organizational structures, especially those that are command oriented or industries with strict procedures.

1.12.3 Organizational Cultures and Spirits (Identity)

Organizations constitute interconnected social systems (Katz & Kahn, 1978). Changes at one level are likely to affect other parts of the system. Model figure 1, illustrates also the connections between higher-level factors around leadership, mission and strategy and organizational culture. These are the strongest influencers of structure, management practices and culture of an organization. Organizational formal structures, management behavior and systems (including communications, reward, selection, promotion and training, etc.) on the other hand, affect more directly work-teams, creating a work climate that in turn affects employee motivation. Organizational structures create spirits (identity) associated with organizational culture. Spirits can manifest themselves in shared values and beliefs guiding the feelings of employees and consequently their behaviors (Schein, 1990).

Technology can be defined as electronic or systems (depicted as part of figure 1), which include ICT and social software⁵ through which information and certain knowledge flows. While technological systems can be seen as extensions of culture, for example the culture of

⁵ Social Software can be defined as an activity technological system where individuals that are united in action and meaning can collectively share ideas and find solutions.

sharing, they further determine the extent to which employees can realize or achieve needs and values. It is the culture of an organization that sets the requirements and expectations of organizational life (Veiga, Calon & Very, 2000). Research has also shown a positive relationship between an organization's culture and its performance (Heller, 1997). The formal structures evaluate skills and job match, by establishing consistency checks. At the level of motivation, skills, individual needs and values are prominent, and these influence performance in a more direct way, which further predetermines DE.

Townsend, DeMaries & Hendrickson (1998) noted that organizational structures were becoming flatter, mostly motivated by the need for increased transparency, collaboration and service-oriented focus. This is currently evident in efforts by companies seeking more employee involvement in decision-making. By encouraging employees to exercise DE, companies cultivate leadership competencies among workers (April & Katoma, 2009). Accelerated skill developments are obtainable through direct sharing of knowledge between workers, irrespective of rank. Sharing of knowledge is encouraged by implementation of effective social software, which does not only promote efficiency in information search, but also intervention by linking the knower to the need through user profiling. All these require flatter governance methods.

It has to be noted that the components identified in figure 1, especially those that are pictorially close to performance are critical to DE as discussed in the later chapters. Specific focus in this research is therefore, directed at work-motivation, culture, skills, needs and values, which are closely associated to discretionary behavior. Other business artifacts such as professional networks, learning, coaching and modeling constructs are considered as essential contextual parameters. The reasons being primarily that, unlike previous research attempts, the current work attempts to derive a discretionary framework focused on knowledge-based- economy that largely encapsulates the aforementioned parameters.

1.13 WORK MOTIVATION

Work motivation is a process or a state of inducing employees to be engaged and emotionally involved in their job roles (Mitchell, 1982). The relationship between an organization and employees is essentially as important as the existence of the organization itself. Organizations should, therefore, strive to identify and understand the elements that persistently prompt employees to act towards achieving intended goals. How an organization defines and positions its reward system, for example, and how it encourages its employees to achieve goals, at both work and the individual level, is required. The rapidity of change in business environments further increases the salience of this need. This is because changes, whether internal or external would require corresponding re-alignment of business performance strategies to meet the often newly created business challenges.

Motivation can also be seen as a multifaceted construct required in many cases of decision-making, especially those that are discretionary in nature and must be framed on well-reasoned judgment. It increases in complexity when goal setting and goal completion suddenly change. Motivation is thus, not action or performance, but the degree to which an individual wants to be involved in a certain action and behavior (Mitchell, 1982). It can, therefore, be *controlled by the employee* and hence the level of performance can subsequently be determined by how motivated employees are.

1.13.1 Complexities around Motivation

Psychology about human-work relations and individual motivation to do best are complex and guided by complex and interconnected theories as earlier noted by Katz & Kahn (1978). There are no set standards in dealing with these work behavior complexities. Yet, the human dimension of business inclusive of leadership, organization citizenship behavior and DE are vital artifacts that offer impetus in work processes leading to business competitiveness. When taken in the context of today's information and knowledge societies, leaders are even more required to confront reality based on knowledge and foster innovation to earn improved organizational performance. Organizations often, however, fail to record sustainable

competitiveness because of limited understanding of strategic variables (Bauman, Jackson & Lawrence, 1997). These variables have the potential to create extra performance values.

Although, social concepts appear to be self-explanatory in terms of desired organizational behaviors, they are to a larger extent part of a knowledge-based system. They are not separable from knowledge cycles that embody learning, knowledge enrichment and knowledge dispersal. Even though, in general, models would encapsulate discretionary behavior related constructs, the elemental theories of performance and motivation (content aspect) are of prime importance because they are building blocks and have to be correctly defined and contextualized. A brief history of motivation types is, therefore, necessary to understand the content aspect of DE.

1.13.2 Extrinsic Motivation

There are two types of motivation drivers, namely, intrinsic and extrinsic motivation. Extrinsic motivation variables deal with the tangible rewards for example salary, security, promotion, the work environment and conditions of work. Parts of these rewards are economical with instrumental orientation (Bennet, 1981).

1.13.3 Intrinsic Motivation

Intrinsic motivation describes psychological variables, such as an opportunity to express ones abilities, a sense of challenge and achievement, appreciation and recognition. Intrinsic motivation is likely to arise, merely by an individual manager's efforts, rather than the incentives of the organization (Bennet, 1981). Furthermore, employees have work-expectations that help to drive motivation. These expectations are mostly about social relationships and include needs such as friendships, group working, and desire for affiliation, status and dependency. Motivation is highly dependent on personal *experience*, which defines beliefs, values and attitudes. A person's motivation is a combination of sets of

motivational variables and the extent to which they are aroused and satisfied. Figure 2, below illustrates the association between motivational elements.

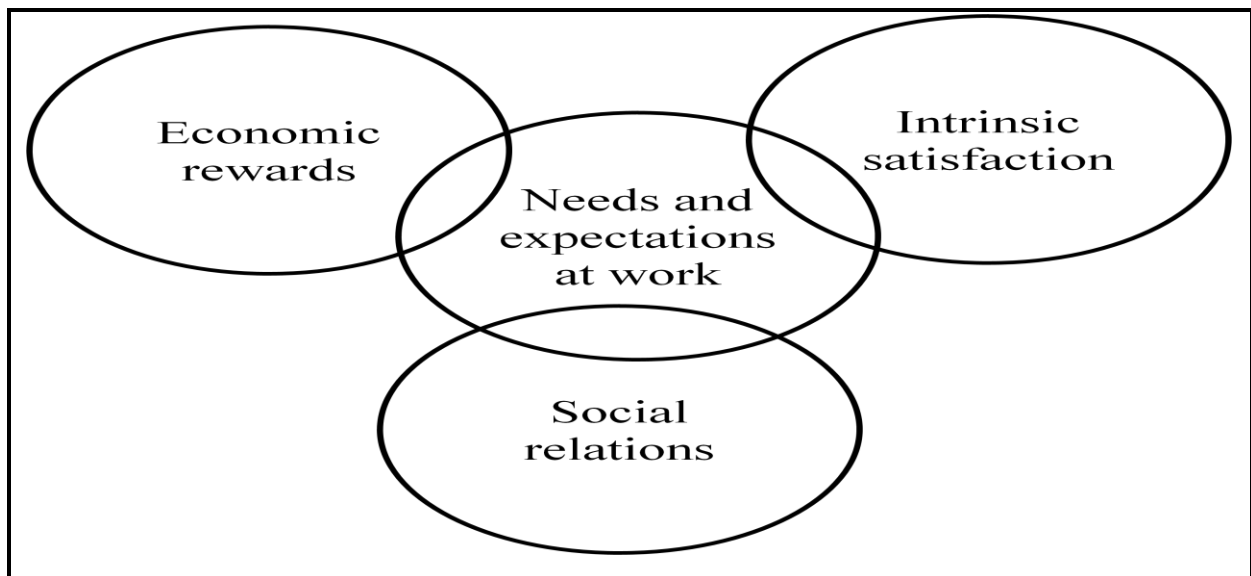


Figure 2: Motivational sources, Bennet (1981).

Bennet (1981) reveals that, economical rewards, intrinsic satisfaction and social relations are interconnected through needs and expectations at work.

Individuals develop perceptions that can be affected by unprecedented changes in the work environment. Individuals may, therefore, seek satisfaction that is more instrumental and even reduce economical rewards. Intrinsic variables also vary according to the individual's intentions. One of the biggest challenges, however, is how to mobilize specific variables for specific needs and situations to achieve optimal performance gains or DE.

1.13.4 Developments in Motivation Related Theories

Motivation is also defined as the total, stimulated individual's predictable results within a presented organizational framework (Campbell & Dunnet, 1970). Some motivation theories simply help to identify important variables, while others suggest interactions between underlying variables. Campbell & Dunnet, (1970) illustrate that the former explains *content* while the later defines *process*.

Expectancy theory is predominantly a part of the process aspect of motivation theory. Organization citizenship behavior and stewardship are associated with the context aspect of motivation. Contextual motivation constructs date back to the findings of Organ (1988). Organ(1988) coined the term 'Organizational Citizen Behavior'. He noted that, although crucial to effective and increased performance, discretionary individual behaviors are not normally associated with reward systems. Such behaviors included, altruism; behaviors that help organizational members, sportsmanship; behaviors that withhold complaints on unpleasant situations, conscience; behaviors that show commitment and persistence. One of the functions of organizational citizenship behavior is to enhance performance (Smith, Organ & Near, 1983). Thus, the ways in which this effort is encouraged is of prime concern to many organizational behavior researchers (Murlis & Shubert, 2001). George (1990) further noted that, part of these behaviors become shaped by environmental factors, such as work groups.

It is, therefore, critical to incorporate a wide selection of theoretical accounts supported by different researchers and scholars. This provides a knowledge base not only rich with tested theories, but also a more inclusive approach. Motivational needs might be similar in many contexts, yet variances in environment and sector dependent factors may render any one set of theories inadequate.

The next section discusses details of these motivational theories and application to performance and consequently DE. This includes, initial theories of motivation and how they have evolved through the concerted efforts of successive researchers and scholars.

1.14 CONTENT THEORIES OF MOTIVATION

1.14.1 Hawthorne Effect

Throughout history, people have organized themselves into teams in order to achieve goals. Work motivation is about people working and seeking motivation in order to improve performance. This implies that efforts should be co-ordinated and controlled to achieve planned outcomes in a collective manner. As early as 1933, the traditional management concepts of motivation were used in work organizations.

The early work of Elton Mayo (1933) focused on work productivity, fatigue and monotony as some of the factors that influenced work motivation. Mayo (1933) made specific references to other factors such as breaks, hours, temperature and humidity as influencers of organizational productivity. Part of Mayo's work revealed that social contacts in the workplace are very important and that boredom and repetitiveness of tasks reduce motivation. The study highlighted that workers could be motivated by simply acknowledging their social needs and making them feel important. One way of achieving this could be by giving employees freedom to participate in the decision-making process. The other means is by paying attention to informal work-groups. The model that resulted out of these concepts was called the Hawthorne Effect.

The problem with the Hawthorne Effect model is that there is over-reliance on social contacts at work situations for motivating employees. In networks, where there is less social contact, the model may not fit well.

1.14.2 Maslow's Hierarchy of Needs

The proceeding research by Maslow (1968) suggested that the behavior of an individual is guided by the strongest needs that individuals have. Therefore, managers need to understand

such needs in order to motivate employees. By realising the needs and helping to fulfil them, leaders can encourage employees to be more productive. The needs were further suggested to be in hierarchical levels and are shown in figure three (3) below.

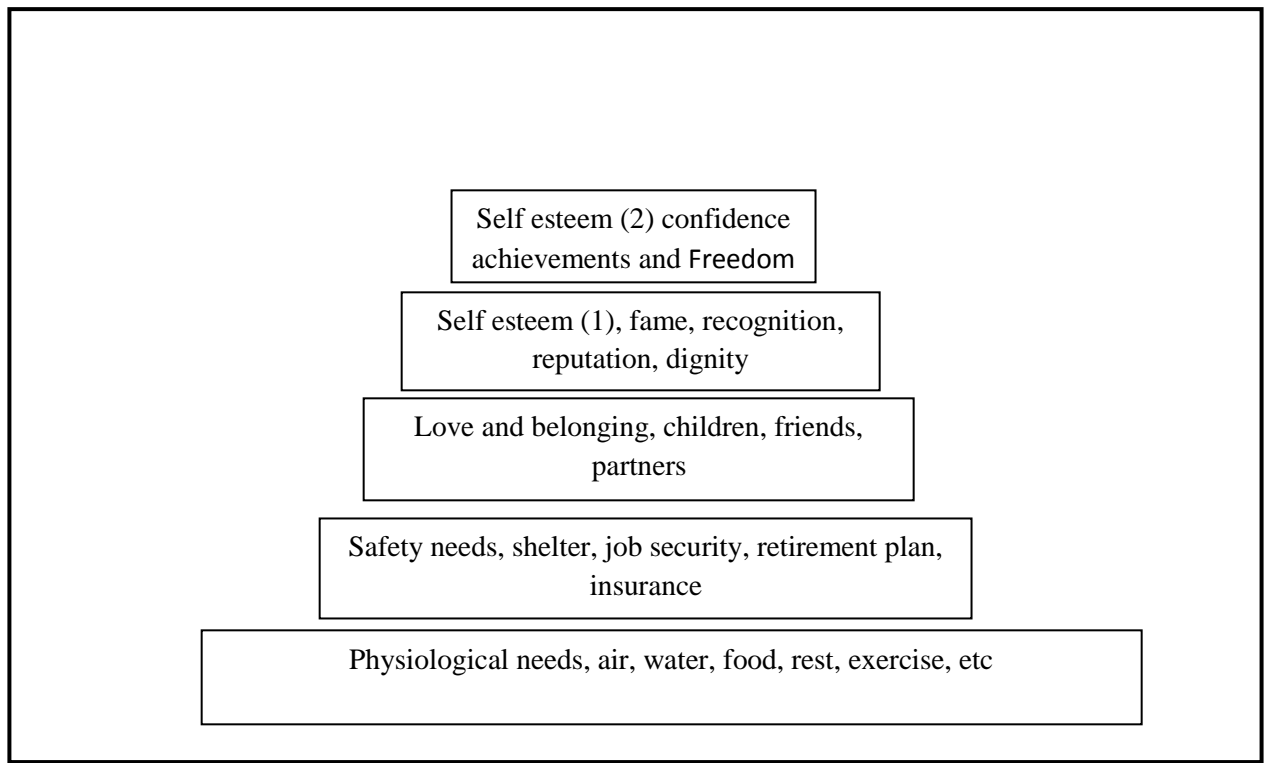


Figure 3: Maslow's Hierarch of Needs (1968)

From Maslow's hierarchy of needs, the four lower levels can be grouped together to form what is called deficiency needs associated with physiological needs. The top most level is expressed as growth needs that are also associated with psychological needs. Maslow noted that, while deficiency needs must be met, growth needs continually shape behavior. An assumption in the framework is that, higher needs only become effective when lower needs have been to some extent satisfied. For example, physiological requirements and safety must be satisfied before higher level needs such as self-fulfilment are pursued.

It can occur that, while growth forces create upward movement in the hierarchy, regressive forces may push other needs further down the hierarchy. Although Maslow's theory received great approval as an improvement from the earlier work regarding motivation, there is conflict, whether, these needs are indeed hierarchical. Wahba & Bridwell (1976) particularly, found little evidence for the ranking of needs that Maslow described. Needs, as with other artefacts of life are prone to change in peculiar ways and what could have been defined as belonging to a certain level may over time shift to another level. Perceptions of needs may also depend on individual characteristics. For example, less individualistic forms of society than those described by Maslow(1968) might value their social relationships (e.g. family, clan or group) higher than their own physiological needs. In the general sense, Maslow's (1968) framework is not intended to be the definition of motivational behavior; rather, it is intended to be used in predicting behavior according to present understanding of an individual's set of expectations he or she attaches to those needs.

1.14.3 McGregor's X and Y Theory

Douglas McGregor, in the book (The Human Side of Enterprise, 1960) looked at organisational behavior of individuals at work. From that research, two models emerged, that he called Theory X and Theory Y. According to McGregor's work, Maslow's hierarchy of needs can be classified into "lower order" needs (Theory X) and "higher order" needs (Theory Y). From these sets of needs, he suggested that management can use either set to motivate employees.

1.14.3.1 Theory X

Theory X assumes that, management tends to perceive employees as inherently lazy and would seek to avoid work tasks and responsibility whenever possible (McGregor, 1960). Consequently, employees should be closely supervised and comprehensive systems of controls need to be developed to monitor and gauge their performance. These controls should

be implemented at all levels of the hierarchy. But such measures should be in turn accompanied by effective and enticing incentive programs. Theory X implies that managerial roles must be well established with corresponding reward systems to motivate the employees. It suggests that without an enticing incentive program, employees will avoid responsibility whenever they can (McGregor, 1960).

1.14.3.2 Theory Y

Theory Y type of management presupposes that workers are proactive. Employees should be regarded as ambitious, self-motivated, and ready to accept greater responsibility. They can, therefore, exercise self-control and self-direction in executing their tasks (McGregor, 1960). Theory Y allows employees to navigate their mental and physical work activities and allows them to express their desires to be imaginative and creative in their jobs. By so doing, employees tend to act in ways that promote the benefits of the company even at the expense of their own time and energy. When employees have these desires, and are afforded the opportunity of working independently, their contribution leads to greater performance. Theory Y type of management supports the idea that, provided with the right conditions at work, people would want to do exceedingly well. It further seems to suggest that strong motivation can be driven from doing a good job (McGregor, 1960). This view is also common in self-directed work-teams, self-management, job enrichment and empowerment artefacts (Carson, 2005). A theory Y manager would ensure that trust is seen to be inherent in employees and that employees have the will and zeal to work without managerial conditions or commands. Theory Y defines more democratic leadership style of governance compared to theory X that re-enforces managerial roles.

The current research is highly associated with McGregor's (1960) suggestions of theory Y, especially when DE is viewed with altruistic perceptions. The ultimate framework, however, spans across a larger set of behavior variables and expectations. Employees work and join

teams with personal and organizational expectancies. They strive to learn through these expectancies and hope to gain self-affirmation.

1.14.4 Herzberg's Two-Factor Theory

On another account, Frederick Herzberg (1959) developed two concepts of motivation in which he suggested that job satisfaction and job dissatisfaction are independent of each other. This postulation asserts that there are particular factors in the workplace that lead to job satisfaction and another set of independent factors that cause dissatisfaction (Herzberg, Mausner & Snyderman, 1959). Employees may also need factors that are not necessarily motivators but are essential for action of work to occur. Such factors are called hygiene factors (Herzberg, 1959). Work places need both hygiene and motivation factors in certain proportions to maximize performance. For example employees may, apart from other incentives, need to be treated fairly to reduce elements of dissatisfaction. Herzberg noted that, when factors, such as sense of achievement, recognition, the work itself, responsibility, advancement, and growth were added to the employees' jobs, they induced satisfaction and boosted performance (Carson, 2005).

Herzberg's (1959) perspective of motivation suggests that if humans are seen to perform work-related action because they are obliged to, such actions can be described as movements. But if they performed well because they wanted to do it, then such actions can be classified as motivational (Herzberg, Mausner & Snyderman, 1959). And, because of the goal component that is required to achieve results, motivated behavior is directional. Motivation has to be time dependent for it to be effective. Motivated behavior is persistent and should have momentum in order to successively accomplish work. It may even trigger a recycled reaction and lead to higher performance levels.

Phillipchalk & Whittaker (1996) researched further on Herzberg's findings but the outcome revealed different trends. For example, recognition, advancement and responsibility decreased as satisfier variables. Salary, and work conditions were reported as insignificant motivators or as de-motivators.

1.14.5 McClelland's Theory of Needs

McClelland (1988) suggested a content theory of motivation based on Henry Murray's (1938) theory of personality. The theory discusses a model about human needs and the motivational process. McClelland (1988) stressed the need for employees to seek feedback, emulate others, modify their self-image and think about themselves in more positive terms. It relates to Herzberg's motivation-hygiene concept because it portrays people with high achievements as motivated by the type of job they have (Accel, 2006).

McClelland (1961) indicates that human motivation consists of three dominant needs namely: the need for achievement (N-Ach), the need for power (N-Pow) and the need for affiliation (N-Affil). The importance of these needs vary according to individuals and their respective cultural backgrounds. When these needs are met, individuals are likely to offer unsolicited effort to their work.

1.15 EXTENDED CONTENT THEORIES AND MOTIVATION

1.15.1 Mental Maps

Argyris & Schön (1974) in a different perspective suggested that people possess mental maps that guide them to act in particular ways in given situations. They (Argyris & Schön, 1974) proposed that these mental maps that are constructed, can be altered according to the way people plan, implement and evaluate actions. In a follow up research on this point, they

however, realised that few people were in fact aware of this notion. The concept of mental maps seems to provide more insight and possible expansion to McGregor's X and Y theory. Argyris & Schon's (1974) theory is most progressive when decision processes are seen to emanate from established thoughts. It provides a reason to define motivation as socially constructed, calculated to achieve goals in the most effective way. Since maps can be constructed instantaneously, they pave the way for dynamic decision making mechanisms and provide linear and alternative non-linear processes of constructing reasons.

While the aforementioned theories about motivation provide special insights in probing human-work related behaviors, the notion of mind maps presents an expanded view. Mind maps, for example, provide ground for knowledge about motivation as they relate to learning. Learning, for example in professional networks, is the key to understanding expectations and relating to peers. It provides beliefs and conviction about whether or not what individuals set out to do on a personal level is achievable and desirable at a workplace level.

These beliefs are prone to change as new information and knowledge are generated. This also means that individuals should be involved in the process of (a) *expressing*; which is the practice of the self-reflexive conversion of individual knowledge and subjective insight into informational objects that are independent of the person, (b) *monitoring*; which describes continuous non-focused scanning of the environment and the gathering of useful just-in-case information, (c) *translating* that involves the creation of information by ferrying it across different contexts until a coherent meaning emerges, and (d) *networking* which is the practice of building and maintaining relationships with people inside and outside the organization (Argyris & Schön, 1974).

1.15.2 Maintenance Theory

Maintenance, unlike intrinsic motivation is associated with rewards of extrinsic motivation. By maintenance, employees seek to attain results based on circumstances beyond motivation. Although, it is difficult to completely isolate these from motivational norms they fall under short-term benefits. One example is the goal theory, often considered to be under the heading

of motivation (Locke, 1968). People's goals drive them to perform and Locke(1968) describes the goal theory as a motivation technique rather than as a formal theory of motivation. Maintenance seekers may succeed in their job performance solely based on their skill. They are driven by the nature of the environment and would not be seeking motivational opportunities. As such, maintenance seekers do not benefit professionally from experience. This category of employees are dissatisfied with factors surrounding the job such as pay, supplemental benefits, supervision, work conditions, status, job security, company policy and fellow employees (Locke, 1968). Although an employee may have a maintenance or motivational orientation, his attitudes can change when exposed to various influencing factors in his job roles. An inclusive and complete system should, therefore, provide conditions for motivation and at the same time satisfy maintenance needs of the employees.

1.15.3 The role of Work Attitudes in Shaping Discretionary Behavior

Work behaviors are associated with attitudes individuals develop in relation to job tasks and work culture. Attitudes can be lifelong attributes of behavior and may be important assets to organizations, especially if they lead to the needed proactive behavior including discretionary effort. Weiner (1992) noted that attitudes can persist and change according to how they are motivated. The process of attitude change is further linked to key questions including, the reason why attitudes are held, why attitudes should change, what the benefits and the outcomes would be, if they should indeed change (Katz, 1960). The current research suggests that, business leaders should recognize discretionary attitudes and strive to harness and or develop them. Katz (1960) suggested, for example, that organizations should develop attitudes and skills that facilitate proactive management. For example, a great deal of effort has to go into mobilizing the energies and commitment of individuals by the creation of shared values and understanding out of constructive attitudes.

Individual expectations and perceptions over performance-outcomes are influenced by the attitudes individuals hold or come to develop at work. Understanding attitudes is, therefore,

important in developing behaviors (instrumentalities) that support work performance and ultimately DE. Attitudes are among other factors are influenced by socialization. Work attitudes that can be shaped into useful behavior, should be considered as powerful organizational assets. Attitudes cannot be seen, they can only be inferred. This makes the attempt to investigate their accuracy more difficult. Assessment processes should, therefore, provide accurate information about the needed *attitude variables* for a particular time and work context. A continuous interpretation and understanding of actions arising from attitudes is thus important. Katz (1960) proposed four attitude functions guided by attitudes:

1. Knowledge: that provides the basis for classification and interpretation of facts. This is in part because people act in ways they are familiar with. Knowledge can, thus, be a strong basis upon which certain discretionary attitudes such as an employee's ready willingness to help workmates can be explored especially in a knowledge-based economy.
2. Expressive: individual attitudes can reveal to others what values they hold, including the self-concept and can help to internalize the values of a group.
3. Instrumental: mastery of certain attitudes may maximize rewards. Such attitudes are kept because of past positive experiences that emerge out of fulfillment of needs.
4. Ego-defensive: arise from attitudes kept in order to protect the ego from an undesirable reality (self-affirmation) (Katz, 1960). This provides another dimension, which can be useful in DE as explained in later chapters.

Researchers have noted that, attitudes can also be used to understand and predict people's reaction to an object or change and how behavior can be influenced (Fishbein & Ajzen, 1975), as in DE. Because it is a mental state of readiness, and often organised through experience, an attitude can be helpful in exerting a directive or dynamic influence upon the individual's response to all objects and situations to which it is related (Allport, 1935). Rokeach (1968) further posited that it can be a *learned orientation*, or disposition, toward an object or situation, which provides a tendency to respond favourably or unfavourably to the object or situation.

Three of the generally accepted components of the term 'attitude' (Triandis, 1971) appear in some of the above definitions. These are: 1. Affective - the person's feelings about the attitude object 2. Cognitive - the person's beliefs or knowledge about the attitude object and 3. Behavioral: the person's inclination to act toward the attitude object in a particular way. By analysing these components, Gross (1954) suggests that as it is a 'hypothetical construct'; it cannot be *directly measured* and the use of only a single statement or question to assess it [attitude] will not be effective in gaining reliable responses.

Attitude scales attempt to determine what an individual believes, perceives or feels. Attitudes can be measured toward self, others, and a variety of other activities, institutions, and situations (Gay, 1996). As business circumstances change, there are important attitudes that should be maintained and others changed to optimize DE. Therefore, tapping into these attitudinal sets by channelling the most useful ones into motivational or *performance catalogue* of an organization is necessary. The current research posits that in order to develop a concrete modern DE framework, essential motivational components including attitudes must be considered. Additionally, the concepts of knowledge and self-affirmation become increasingly important for work environments that have become knowledge dependant. These concepts underpin the crucial elements of modern DE which manifests in environments that are highly connected by technology and where self-image or recognition is required for personal development.

1.16 PROCESS THEORY OF MOTIVATION (EXPECTANCY)

Expectancy is the process aspect of motivation and as such introduces the important part of dynamic work behavior. The expectancy model presents various interactive processes through which DE is constructed. It, therefore, provides entry to the measurement aspects of DE. Measures are critical in processes such as optimization and inference that are highly needed in dynamic work environments. Through modeling and codification of critical DE, business variables become possible. This can lead to a variety of statistical and mathematical analyses,

which provide further business insights and increase in DE. These are discussed further in the next chapters.

The basic expectancy model (VIE) as shown in figure 4 below is based on valence, instrumentality and expectancy. Valence (V) is the importance of the anticipated outcome. People place a gauge on the anticipated value of the outcome. They try to ascertain whether the effort they are about to invest in, is worth the risk or trouble in obtaining a particular reward. While value is the actual benefit obtained from a process, valence is not exactly the same. A low valence can, however, result in high satisfaction. Instrumentality (I) is the second level outcome, which is derived from the valence of the outcome.

The first level outcome is simply outcome from the expended effort or can be stated as performance outcomes. The second level outcomes are associated with needs and are derived from the first level outcomes. High performance outcomes are associated with better rewards. People receive rewards because of performance outcomes rather than the effort expended. Little is however, known about the reward that people receive from expended effort alone. Nevertheless, this can be investigated through influencer variables. The strength of the valence is therefore dependent on the anticipated extent to which the outcome serves as a means to other outcomes at the second level. Thus, a high valence is attainable because of the anticipated instrumentality it has towards the achievement of larger number of need outcomes. It is, therefore, logical to state that instrumentality is the association between the first level outcomes and the second level outcomes.

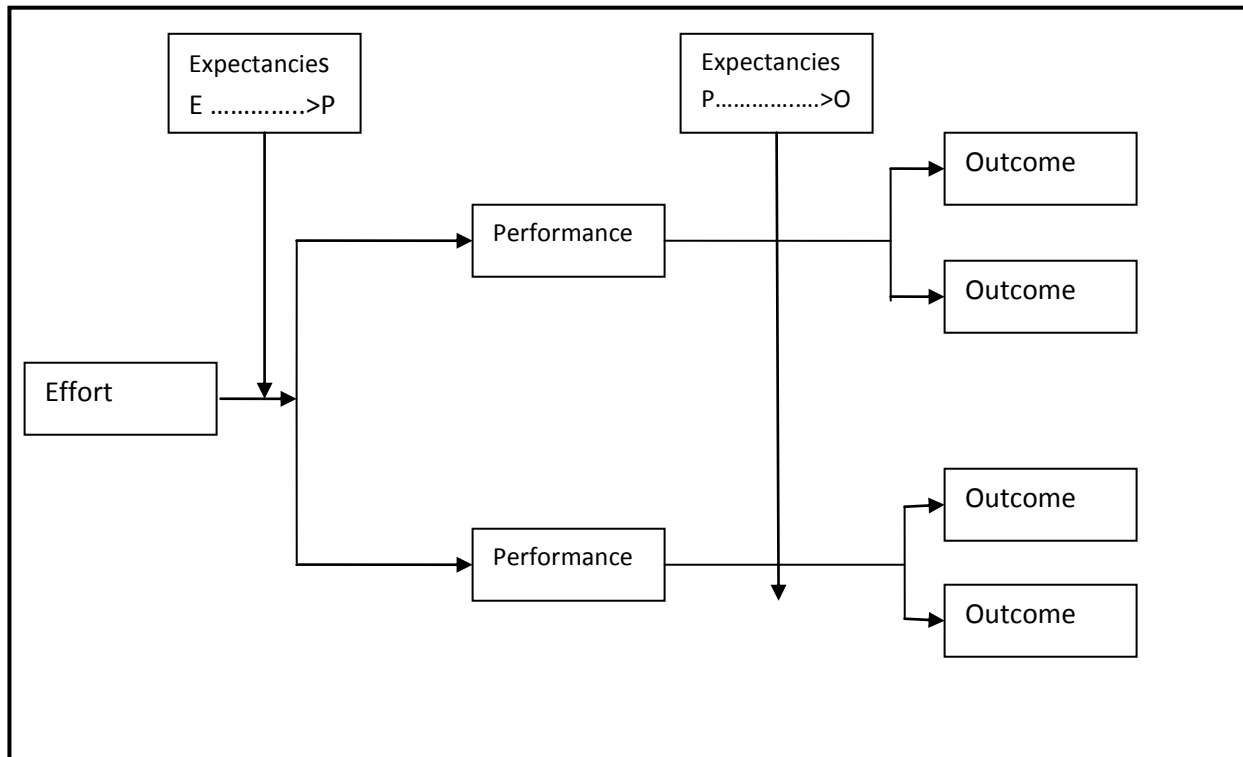


Figure 4: Lawler Expectancy Model (Lawler, 1973)

From the Lawler (1973) expectancy model, effort initially applied is based on the first level of expectancies. This results in the generation of performance as outcome. The first expectancy is, therefore, based on the probability that, to the expended effort, performance follows given by (E.....>P). This is also known as the effort performance expectancy. The second levels of expectancies then arise, partly due to the performance results. Another probability then is established (P.....>O) that uses the performance measures output as input and produces outcomes that are need related. This is called performance-outcome expectancy. E.....>P is determined partly by an individual's abilities, and self-confidence, past experience, and the difficulty of the task. On the other hand P.....>O is gauged by the attractiveness of the outcome and to some extent, the belief about control placed on the outcome. These include the individual in the process or other people in the system. In this respect, the expended effort is presented as a motivational force:

$$E(\text{Effort}) = E \dots \dots \dots > P) \times (\sum [(P \dots \dots > O) \times V] \dots \dots \dots 1.1$$

Where (V) the valence is the strength of the anticipated outcome.

When valences (V) of all the outcomes combine interactively with expectancies that, action will result in achieving these actions (E), a motivational force is created. Formula 1.2 shows a motivational force presented in equation form:

$$F = \sum_1^n E.V \dots \dots \dots 1.2$$

From equation 1.2, if either the valence (V) or the expectancy (E) is zero, the motivational force becomes zero. The measure of E.V. is a total sum across possible outcomes. This results in a single figure, illustrating the significance of the contemplated behavior.

Although different aspects of the expectancy theory exist, the core elements are similar. Research tests conducted by various scholars seem to support a generalized expectancy interactive model. The complexity of the theory often, however, invokes the difficulty in constructing such a force. This is because:

1. Expectancy models are not easy to understand.
2. They are often complex to apply.
3. There are too many variables at play in any prospects of an accurate force and how to know what is required for specific circumstances can be a complex process.
4. There are many variables that affect behavior at work and there are even many more that are elusive in professional networks.
5. A problem can arise by including too many variables that can weaken the prediction capacity and on the other hand, too few variables would not provide adequate and meaningful information.

1.16.1 Origin and Strategic use of DE

The development of DE construct can be attributed to the works of Vroom (1964), Porter (1968) and Lawler (1973). Other supportive theories in this area include contributions by Adams (1965) and Locke (1975) on equity and goal theories respectively. While the earlier

theories focused more on expectancy and motivation, the notion of equity dealt more with employee treatment. The theory of expectancy, on which DE builds, postulates that employees are motivated to engage in certain behaviors to the extent that those behaviors lead to results in a desired outcome (Miller & Grush, 1988). DE however, draws significantly from other motivation theories, as explained in this chapter. Because the expectancy theory has stood a test of time, researchers apply it in diverse settings, including social attitudes, decision-making processes and causal attribution (Feather, 1982).

Adams (1965) argued that if individuals, especially in social relationships, base their contributions on expectations they will receive something in return. This orientation becomes stronger if they have observed such rewards given to others. Equity, in fact, explains part of the reward system in work relationships. Goal theory builds from the understanding that, performance is associated with goal setting (Locke, 1975).

Apart from these operational- performance related measures; the current dynamic knowledge-based business processes require activity based performance metrics. Some of the immediate evidences and need for departure from traditional operation-based performance, to activity-based performance measures are that:

- I. Work is largely influenced by systems, technology and procedures that are beyond individual control and therefore, performance cannot be correctly determined by mere operational cost accounting.
- II. Workplace environments have become highly integrated especially with increased virtual collaboration. This creates a work landscape that is beyond spatial and temporal limits, which are complex to manage and in which DE manifests itself, in many unnoticed ways.
- III. There is emphasis to change from dependable role performance to innovation that exceeds role requirement (Katz & Kahn, 1966).
- IV. Business competition has increased due to increased business technological tools such as computing facilities.
- V. Demand for manager-leadership style of governance, which requires that employees should not be seen to be only managed but lead as well. The management-leadership style of

governance promotes interactions and the creation of teams. Teams, including virtual ones are groups of employees created through interaction and or simply discovery of people with similar attitudes, “for example benevolent⁶ behavior” or shared values and trust. If well natured, teams can turn into stronger peer relationships or affinity-tribes, which can strengthen organizational competitiveness. Affinity-tribes encourage openness, emotional attachment towards members and help to nurture DE. However, these teams and or affinity tribes may not be sector or even profession specific.

1.16.2 Intricacies of DE: Expectancies as Beliefs

Typically, expectancy models constitute three variables, namely expectancy, valence and instrumentality. These variables as well as the self-affirmation variable are explained in this section.

1.16.2.1 Expectancy as a Belief

Expectancy is a belief based on the principle that towards an effort, there is an anticipated performance outcome (Vroom, 1964; Katz, 1964). It is a probability that certain goals are attainable by making particular work attempts towards those goals. Expectancy depends on an individual’s experience, self-efficacy (confidence) and perceived difficulty of the task. Examples such as, if one worked harder than everyone else, one will produce more and if one spent much of the day studying, one will score high in the next test; are common. While self-efficacy is dependent on skills and competencies, a perceived difficulty is determined by goal setting. When goals are too high, expectations are likely to be low (Scholl, 2002). To avert the problem of low expectations caused by too high goals, employees should possess some sort of perceived control over the task so that the ability to achieve is within reach.

⁶ An extent to which an individual is believed to be willing to help teammates beyond personal motives or individual gains.

Expectancy needs can only be fulfilled, if additional requirements such as, having the appropriate resources, for example raw materials and time are available. Secondly, having the right skill to accomplish the task and receiving the necessary support to get the work done, for example, supervisor support, getting the correct information, and learning about the job also help to satisfy one's level of expectancy.

1.16.2.2 Instrumentality as a Belief

Instrumentality is a probability based on the belief that by attaining performance expectations, a greater reward awaits (Vroom, 1964; Scroll, 2002). Rewards could be in terms of pay rise, recognition or sense of accomplishment. Instrumentality, is nonetheless likely to be low if, to every level of performance, a reward follows. This is obvious for instance, if a company gives high and the same bonuses to everyone regardless of performance levels, then instrumentality would be low. Examples of instrumentality include such cases as, if one produced more than everyone else did, one will get a greater commission or quicker promotion and if one scored high on performance rating, one will get a promotion. Instrumentality is a likelihood oriented, in that, consequences will follow a particular behavior, for instance, if one performed convincingly well, it is likely that one's manager would be encouraged to promote one.

In gauging the levels of instrumentality, employees need to have specific knowledge about the workplace. They (employees) need to understand the relationship between performance and outcomes, for example, the rules of the reward system of the company. Trust in the people making decisions would also determine how employees are likely to value the instrumentality levels. It also depends on the transparency of the process that determines the rewards of employees.

1.16.2.3 Valence

Valence is the value an individual places on the reward or outcome (Vroom, 1964; Katz, 1964). Usually, this is a function of an individual's needs, goals, values and sources of motivation. Issues such as, *is it important for one to be the best marketer* or *does having a bigger pay increase the worth of the hard work*, become important in setting valence levels? Valence is the perceived emotional orientation people develop towards an outcome or reward (Scholl, 2002). People would naturally be attracted differently to the expected outcomes. For example, if one is highly motivated by money, he or she might not value offers of additional leave days.

Factors in the potential outcomes are likely to be promotions, intrinsic satisfaction from validating ones skills, intrinsic satisfaction in knowing that one's efforts have a positive influence in helping somebody. Valence is associated with high positive and negative outcome perceptions in a situation and, therefore, it is consequential.

Valence can build from interlinks between the effort and outcome processes. Individuals, for example would examine these links and change their levels of effort according to the value they place on the outcome they receive or perceive from the process. This is also dependent on the strength of the link between effort and outcome.

In setting Valence, employees assess ideas such as if: their increased effort will not increase performance; their increased performance will not increase their rewards; they do not value the reward on offer, then strictly speaking, they are not going to be motivated. It also implies that, if a company only fulfils two of these, the employee, thinking through the Valence construct is not going to be motivated.

In relation to the Equity theory of motivation, employees also compare outcomes with peers.. They will alter for example, their level of effort they give to make it fair, compared to others. If two employees get the same raise in salary this year, and if one thinks that one has put in a lot more than the colleague, then one will likely scale down one's input in the following year.

Motivation on the other hand is not all about self-interest. It is also about, the associations people make towards expected outcomes and about contributions, they feel they are making towards those outcomes. For example, one feels that one has to recycle paper because one thinks it is important to conserve resources (Valence). One may think that the more effort one commits to recycling, the more paper one will recycle (Expectancy). One may also feel that the more paper one recycles, the fewer natural resources are used (Instrumentality).

It is also important to note that expectancy theories are relative to perception and what works in one environment may not necessarily attain the same outcome in another place. However, the basic principles remain useful. What is particularly important is the useful attitudes that can be developed out of them and how they can be used to improve performance and subsequently, DE at work. If workers develop positive attitudes because of expectancy perceptions, an organization as a system is likely to learn over time and strongly reposition itself on a competitive edge. This implies that if an organization system can continually adjust effectively and systematically mobilize discretionary variables, it can set itself into *self-generating performance dynamics*.

1.16.3. Descriptive Accuracy

Descriptive accuracy attempts to establish logic in the combination of the expectancy variables. It states that, variables within the expectancy model have a particular ordering that makes them predictable. Descriptive accuracy properties further aim at improved understanding of the variable combinations in DE. So far, two axioms tested are independency and transitivity. Independence assumes that there is no relationship between valence and an estimated likelihood that valence will follow from working at a certain level of effort. Transitivity on the other hand describes a particular ordering in the way the expectancy variables interact. The primary aim is first to conceptualize expectancy theories into a model that depicts a process and the way the variables can be related. Secondly, to

demonstrate that the envisaged DE framework emanates from well established constructs, which can be extended to capture the current thinking of an integrated, knowledge-based DE due to the concept of knowledge-based economy and attributes such as service concepts. While the previous sections help to identify the important variables of expectancy and consequently DE framework, the following part focuses on the interaction of these variables and the possibilities of creating DE out of the interaction process. The next section thus details the relationships, independency and transitivity possibilities of the variables.

1.16.3.1 VIE and Subjective Expected Utility (SEU)

Expectancy model VIE is essentially, developed on subjective expected utility (SEU) (Wahba & House, 1972). In order to have a comparative view on the two concepts, the mathematical expressions are first illustrated and compared. Other descriptions of expectancy theory omit the instrumentality variable and use different numerical notations but the principle remains the same (Dachler & Mobley, 1973).

In mathematical terms, the valence V_j of a performance level j is expressed as

$$V_j = \sum_{k=1}^n (I_{jk} V_k) \text{ where } V_j \text{ is the valence of the performance level } j \dots\dots\dots 1.3$$

$$I_{jk} \text{ is the instrumentality of the outcome } j \text{ or the attainment of outcome } k \dots\dots\dots 1.4$$

$$V_k \text{ is the valence of the outcome } k \text{ and } n \text{ is the number of outcome} \dots\dots\dots 1.5$$

$$F_i = \sum_{j=1}^n (E_{ij} V_j) \text{ so that, } F_i \text{ is the force (motivation) to perform act } i \text{ and } E_{ij} \text{ is the strength of}$$

the expectancy that outcome j will follow from act i . V_j is the valence of outcome j and n is the number of outcomes.

Research has shown that there is an average (moderate) correlation between the valence of an outcome and instrumentality. This moderate value usually measures about 0.50 of the Pearson correlation coefficient (Starke & Behling, 1973).

In the above constructs, individuals go through a cognitive process of analyzing the best options among many alternatives to perform an act that should amount to the greatest positive force of performance. The mathematical expressions of expectancy are useful in investigating the descriptive accuracy with two basic known tested axioms. These axioms are necessary for the viability of the process of expectancy but are not sufficient indicators that they conclusively describe the expectancy process.

The hypothetical construct of expectancy according to Vroom (1964) expressed as:

$F_i = \sum_{j=1}^n (E_{ij} V_j)$ is congruent to the postulates of subjective expected utility (SEU) theory of decision-making. SEU assumes that individuals systematically analyze the value of performance and the possibilities (likelihood) that can be achieved before getting to the level-of-effort or decision. The mathematical congruency between SEU and expectancy theory is illustrated below:

For SEU (Wahba & House, 1972):

Optimum action = $\sum_{i=1}^n (P_i U_i)$ where P_i = probability of outcome I occurring. U_i = the subjective perceived utility of outcomes i.....1.6

In comparison, expected level of effort: $F_i = \sum_{j=1}^n (E_{ij} V_j)$, where E_{ij} = the probability that act I will result in outcome j. The valence of outcome j is V_j 1.7

It is clear from the formulas and according to Vroom that, expectance and SEU are founded on the same principles and that both place high emphasis on expectancy. From the similarities, it is logical and it has been argued that the underlying axioms of SEU are inherent

in $F_i = \sum_{j=1}^n (E_{ij} V_j)$ 1.8

The first axiom states that there is no relationship between the valence of an outcome and the individual's likelihood estimate that it would follow from working at a certain level of effort: $r_{E_{ij}, V_j} = 0$.

The second deals with preference ordering. It is assumed that there exists some order in the construct: $F_i = \sum_{j=1}^n (E_{ij} V_j)$ in the sense that if $F_1 > F_2$ and $F_2 > F_3$, then it follows that $F_1 > F_3$.

Thirdly, if $V_{j1} > V_{j2}$ and $V_{j2} > V_{j3}$ then $V_{j1} > V_{j3}$. The sign $>$ should be interpreted as “preferred” and not “greater than” as in the mathematical sense.

Although the logic about descriptive accuracy may not necessarily hold in all circumstances, it may be attained through *learning and beliefs*. Depending on situations and certain events, an individual may opt to act in a completely unexpected manner. This is likely to be common in circumstances that are new to employees. With increased complexity in business processes, an individual may, even under the same circumstances chose to perform different behaviors. However, through learning and acceptance of certain work beliefs, for example those that are rooted in work culture, an employee may master certain responses and follow these in making discretionary decisions. When such orders are determined and are stable, they can be useful in mastering responses to challenges that usually follow a linear process. They can also be useful in categorizing or classification of variables so that only the needed are codified. For example, with appropriate modeling processes, value chains can be established (Potter, 1996) by arranging value adding activities and creating business connecting process functions. The biggest problem with complexity in business process is that, an individual may, even under the same circumstances chose to perform different behaviors. Since behavior is multi-dimensional in nature it is influenced by various social factors. The ordering process can thus be treated as a special case. In the context of DE behavior, an accurate selection of concepts or mental maps is critical.

1.16.3.2 Other Possible Application of Ordering Principle

The ordering process can be particularly essential in trust relationships. The relationship establishes on the understanding that, if an individual for example, A is trusted by individual B and individual B trusts individual C, then A should trust C. Instead of individuals, these can be in terms of pieces of information. Such relationships are important especially in virtual networks, where people do not normally have face-to-face interactions and large work groups that rely on information sharing. Such relations are also common in strong hierarchical work arrangements. For example, trusting one's team leader may imply automatically trusting one's line manager who is more senior than the team leader. Trust is linked to DE in the sense that, without trust employees are likely to have less expectations which can lower their DE. This is however, left for future research.

1.16.4 The Concept Self-Affirmation

Self-affirmation is based on the principle that, following a particular event such as a performance or engagement, an individual will achieve something such as a skill. The achievement, in turn helps to build and protect the image of self worth (Steele, 1988). Researchers have noted that self-affirmation has a significant advancement on ego-based views of dissonance (Spencer, Joseph, & Steele, 1993; Steele, 1988; Steele & Liu, 1983; Steele, Spencer, & Lynch, 1993). Any study that attempts to understand the elements of culture, attitudes and behavior cannot escape cognitive dissonance. Because DE can be constructed from attitudes and behavior, self-affirmation is of prime importance. When an employee undertakes an action or decision, dissonant from what is expected of a competent person, the self-system is activated and runs through until the threatening dissonance is rationalized (Heine & Lehman, 1997). In professional virtual networks, self-affirmation serves to strengthen one's global image. The importance of affirmation of the self in networked environments is that employees join networks with high expectations that can cause dissonance. To meet certain expectations, employees develop this self-system to maintain their self-image, especially when faced with threatening information of positive self

(Heine & Lehman, 1997). Self-Affirmation can provide an individual with abilities to adapt to change. This is because affirmed people are likely to overcome fear and other difficulties of the change process.

Other than perceiving self-affirmation as a response to threatening events, it can be a process of reinforcement or enhancement for subsequent challenges. Nonetheless, enhancement of the self could be physiological and a change in behavior could be because of threatening experiences (Meirick, 2005; Langner, 1997). The process of enhancement can also emanate from contrasting mental models in order to assess and develop ideas concisely. Examples of self-affirmation potentials would, therefore include, positive comparison of expectancy with peers, whether expectancy is meaningful and evaluated by workplace. It would also depend on whether the self has capacity for efficacious action. Self-Affirmation is thus, in many ways influenced by norms such as closest peers at work, the group perspective of an idea and workplace values.

The component of self-affirmation is absent in the original expectancy framework. This research however, recognizes firstly that it is an important part of the DE framework, especially in an integrated work environment. Secondly, that since part of the research involves company norms, which contribute to building culture and shaping the self-image. Heine & Lehman, (1997) noted that, self-affirmation is changeable in one way or the other by these norms and cultures (Heine & Lehman, 1997).

The inclusion of the self-affirmation variable can improve the reliability of the DE formula by adding another important human dimension to the construct. It is also a way to demonstrate generalizability of the DE model. There are essentially three ways of dealing with models. Firstly, it is to increase its components to increase predictability and stability, second, to modify the model for precision and the third is to reconstruct a new different model (Schwab, Oblian-Gottlieb & Heneman, 1979).

1.17 SUMMARY OF CHAPTER

The approach in the current chapter was first, to separately, define motivation constructs into categories, namely content, process and context of a DE framework intended for integrated work environments. Second, to highlight the importance of harnessing and developing DE with a view of incorporating relevant business concepts such as knowledge theory, intangible assets, services theory and value creation which can drive and enhance DE. It purports that DE, in the current knowledge economy should be conceptualized with the contextual relevance, which includes the concept of self-image, that protects one's standing in a socially complex environment. Unlike traditional DE concepts that largely focused on individual expectancies, the current thinking realizes that the social context due to the interdependence of DE and the current economical tenets including collaboration, service economies are increasingly becoming important, and thus, should be part of the DE build up processes.

This chapter further attempted to heighten the importance that, to understand DE in the current business environments, DE constructs should be associated with the actual work conditions of the worker. A brief overview of organizational structures was illustrated to highlight the functional connectivity and interdependence between organizational components and DE. It implies that DE is ingrained in existing organizational structures and only needs to be extracted. This chapter further explained the content and the process (expectancy) aspects of motivation. The content focused on the foundation concepts while the process dealt with the interactive possibilities of the underlying DE factors. The chapter did not, however, go into details of specific concepts but rather demonstrated that a DE framework that feeds off these concepts can provide a modern understanding of an enhanced DE.

CHAPTER 2: CONTEXT AND EXTENDED DE THEORY

2.0 INTRODUCTION

This chapter, describes the context aspect of DE as an integral part of a framework. Context, in the current research is meant to describe the real situation of the worker. It is viewed in the current thinking that, in integrated workplaces, context must be part of a broader strategy of developing DE. The current chapter (2) builds on the DE content and process theories as initially discussed in chapter 1.

It is purposed here that a concrete understanding of a framework must also take into account the existing structures or basics of DE. An introduction to DE audit is therefore, first presented to lay the ground for the context and extended theories of DE. The chapter then focuses on the context of learning and coaching as some of the necessary ways of developing DE. Moreover, since intangibles are difficult to quantify, context is highly necessary (Teece, 2000). This chapter further combines the content and process aspects of motivation within the context of sector and cross-sector networked workplaces. Networks, especially those that are based on knowledge, encourage employees to share and enrich the knowledge of its members, and are part of knowledge management systems in the workplace. The composition of the data set (managers and specialists) is a general indication of employees with a significant knowledge base, which fits in with the professional concept. Concepts of knowledge, knowledge worker and knowledge networks are thus, discussed further. A subsequent aim of this chapter is to discuss the actual work environment from which the data sample was obtained. It thus, explains different work network concepts in order to underscore the integrated work environment. Lastly, multilevel analysis, which constitutes part of the context aspect of DE, is delineated.

2.1 DE AUDIT

Organizations will always have potential DE embedded in expectations and knowledge and in its social system. Based on circumstances and context, DE is likely to be exercised unknowingly by employees. DE is a knowledge-based resource, complex and hence difficult to quantify. In order to, therefore, account for this resource, certain measures must be in place even before conducting DE surveys. Accounting for DE includes an audit through knowledge that is discretionary (knowledge, which constitutes discretionary constructs such as being benevolent and rewards) and by monitoring contexts and checking whether an environment in which DE can be encouraged does exist. This is important because employees may have learned the skills, but they may not have the systems or resources needed to do the job. They also, may not have the reinforcement they need from their leaders. Without an audit, it is difficult to measure progress.

The factors underlying VIE can be defined as audit variables. DE audit can help to establish the most critical DE variables for a particular organization and its specific timely needs. When possible, experimental data can be collected frequently if not continuously to monitor and evaluate DE. Although, this may seem hard to implement, the ultimate and meaningful measure of DE would, largely depend on repeated statistical observations, and inferences. Jonson (2004) noted that most organizations that have institutionalized survey processes, generate time based comparative analysis to measure trends in general attitudes and perceptions of employees. Such surveys can help monitor immediate or long-term changes and impacts on organizational changes (Burke, Coruzzi & Church, 1996). An audit of expectancies can be a survey of requirements and needs for DE, especially in the context of an integrated work environment.

The current research proposes that organizations should carry DE audits that may include:

1. Identification of the needs and expectations of the people in particular situations and groups that would make them act proactively. This may include specific evaluation of the critical expectancy values of the employees and monitoring to determine if these link to performance. A training program that includes providing guidance and support for identifying DE variables should be in place. Further, the program must ensure ensuring that machines and other tools that help to execute DE are well maintained.
2. Checking if reward systems exist

- a. If reward systems exist, then an evaluation of whether they are used appropriately should continuously be conducted.
 - b. Leaders should evaluate or determine the kind of outcomes employees' value. They should check whether it is recognition, praise or economical rewards. They should then link the rewards and values to their performance. It is likely that, if an individual is rewarded for a particular performance act, he will repeat that response.
3. Attempting to establish relationships between effort-performance and rewards, as perceived by individuals.
4. Checking whether clear procedures for evaluation of individual-levels of performance exist.
5. Paying attention and noticing intervening variables such as abilities and traits, role perceptions, organizational procedures, and support facilities, which, although not necessarily direct motivational factors, are known to affect performance.
6. Minimizing undesirable outcomes, which are perceived to arise from high levels of performance, such as industrial accidents.
7. Determining whether DE is perceived to be important at the workplace.
8. Checking whether DE is continuously evaluated at the workplace.
 - a. If it is, then check how DE is evaluated
 - b. If not, then check why it is not evaluated.

Checking if workplace systems provide space for feedback. If not then check how results are relayed.

2.2 KNOWLEDGE WORKER CONTEXT

Knowledge workers are employees who apply their theoretical and practical knowledge to specific areas of knowledge (Tampoe, 1994). Hence, they create more knowledge and facilitate organizational required learning. Knowledge work requires specific actions such as extracting or expressing experiences, monitoring and networking (Schulze, 2003). It thus, requires communities and process-oriented activities. Hedrich & Maier (2004) proposed that,

to understand knowledge and knowledge working, demands concepts and modeling techniques that extend traditional business processes. It has to be noted however, that, to make altruistic decisions, employees may not necessarily need to be highly knowledgeable. The argument in the current research is that increased knowledge would however, guide individuals to make sound altruistic decisions and effectively facilitate DE development, especially in a broader context of highly integrated workplaces. Knowledge increases employee expectations and it provides ground for well-reasoned DE construction.

Knowledge, especially which is constructed for DE would also require context. Additional of context to process and content would require adequate representation of knowledge-based DE variables or concepts. Individuals may have learned how to set certain expectations but applying them on the job requires a large amount of contextual knowledge (Kogut & Zander, 1992; Lave & Wenger, 1991). Organizations and employees must further strive to create one area in which knowledge and the communities creating it are inseparable. This would create one space in which employees interact to achieve the needed rapid learning of both employees and the organization at large.

2.2.1 Knowledge Worker Orientation Context

As early as 1994, Tampoe (1994) noted that organizations no longer emphasized the need for long-term employment contracts for knowledge-workers. . To the knowledge of this author, the current literature does not suggest any shift from Tampoe's (1994) views. Knowledge workers are free agents and can move with their knowledge easily. Therefore, any creative work provided by knowledge-workers should be natured and quickly learned and shared with other workers. Tampoe (1994) further suggested that the personal motivation of these knowledge workers is dependent on *reward expectation* at work. He pointed out that the key characteristics of this motivation are associated with *task competence*, *peer* and management support, task and role clarity and corporate awareness.

This research suggests that the notion of knowledge-worker should be part of a strategic DE component of organizations especially with tasks that are knowledge intensive. It can be one

way of complimenting knowledge processes especially for corporate entities whose competitiveness largely depends on information and knowledge elicitation. Although knowledge workers rely heavily on networks that are supported by technology, true knowledge working cannot be automated (Mullins, 1985). Knowledge workers are people who are themselves changed by information (Mullins, 1985). They then use the information to generate knowledge to change organizations and or customers' business views in both indirect and direct ways. It is noted further that, today's society further requires leaders who can confront reality, using knowledge to foster innovation and consequently improve performance (Victor, Garcia-Marales & Francois, 2008). Other researchers pointed out that management of knowledge and innovation is a key process that enables people to create the essential competencies, for enhanced organizational performances (Barret & Saxon, 2006; Grant, 1996; Hurlley & Hult, 1998).

DE can moreover, be associated with transformation, assimilation, and articulation of expectations in organizational activities. It stems largely from a good understanding and interpretation of information and knowledge to achieve the desired levels of confidence and competence that effect action. It is obvious that, individuals contribute to knowledge activity based on the expectancy of certain benefits. On that, the perceived value from knowledge seeking depends on *contributor's expertise* and *credibility*, while the perceived expectation of value depends on *trust*, *obligation* and contributor *willingness* (Vroom, 1964; Kaltz, 1978).

2.2.2 Motivators for Knowledge Workers

According to Mullins (1985) some of the noted motivators of knowledge workers include:

1. Personal growth: applies to especially self-development rather than growing managerial or professional skills.
2. Autonomy: that gives workers the freedom to work within the rules rather than working to rule or define their own rules.

3. Creative achievements: where the work is of commercial value rather than meeting assigned targets or doing stimulating work, but which is of little or no commercial value.

4. Financial rewards: such as salaries and bonuses earned due to personal effort are more valued than the group effort.

2.3 CONTEXTUAL LEARNING AS DE STRATEGY

Learning is part of any competent individual and company. In the knowledge intensive economy, learning must occur in continuous and rapid ways at all levels of organizational hierarchies. Learning and coaching can be very instrumental in determining how to exercise discretionary effort in the most effective manner. Driscoll (2000) posited that, a basic assumption of constructivist theory is that learners construct knowledge as they make sense of their experience. Since, part of the demand for DE is value creation through performance, it becomes imperative to make employees aware that their DE is part of the entire process of value creation. This value begins with production of goods or services and goes right through, accompanied by DE to the stage when customers are eventually convinced and make the purchase. Emphasis on customer value creation is an intangible asset itself. This asset has been noted to positively influence business performance and leads to competitive advantage (Narver & Slater, 1990; Deshpande et al., 1993; McNaughton, Osborne, & Imrie, 2002). For industries that require face-to-face interactions such as the retail and financial sectors, DE is more evident and affects performance more directly.

The preliminaries of learning and coaching can simply be framed on common concepts such as data, information and knowledge. Data are discernable differences between alternative states of a system Boisot(1998).

Information is data that modifies the expectations or the conditional readiness of an observer Boisot(1998). It causes modifications necessary to trigger actions. The more those expectations modify, the more informative the data are.

2.4 KNOWLEDGE AS SETS OF EXPECTATIONS

Knowledge, to some extent can be defined as a set of expectations that an observer holds with respect to an event (Boisot, 1998), such as valence. Relating expectations and using this to predict events can determine how knowledgeable one is about an event. Knowledge is a disposition to act in a particular way that has to be inferred from behavior rather than observed directly (Piaget, 1989). Knowledge has been defined as a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information Davenport and Prusak (1997). Knowledge, as with expectations thus resides in the mind of a knower (Quinn, 1992) while information moves in systems and processes. Das & Teng (2000) noted further that, knowledge-based resources refer to a firm's intangible expertise and skills, in technology and management. A rich knowledge and information base can thus provide a powerful expectation base on which discretionary effort can be constructed. From this point of view, a rich expectation base or sets of expectations would provide a powerful knowledge and information premise from which DE can be constructed. While information is likely to relate to knowledge through schemas, knowledge sets can relate with each other, just as information sets do. From this viewpoint, knowledge and sets of expectations can thus, be used interchangeably.

Expectations just like knowledge are modified by the arrival of new information, which in turn has to be extracted from the data generated by phenomenon. It also follows that the amount of knowledge generated from the garnered information would depend on the information interpreted. This includes role clarity in the case of DE build up. The interpretation of information is further reliant upon how many, if countable, mental schemas people come to develop in a particular work environment for them to act or make informed decisions (Agyris and Schon, 1974). In light of these propositions, the current research further examined two knowledge aspects pertinent to work expectations and DE. First, knowledge as cumulative and second knowledge as a paradigm construct (spontaneous concept). The reason is firstly, that the intent of the current research is to provide a concrete

base of DE that defines the actual work environment in which sound business artifacts are an integral part. Secondly, to provide some form of measurement, which can help to guide further DE concepts.

2.4.1 Knowledge as a Cumulative Asset

Knowledge can be attributed as cumulative expectations about events. It implies that the more knowledge individuals have, the more anticipation and expectation combinations they possess and can make about events. This means that, certain knowledge assets are subsets of disposition to act, or potential for action (Malhotra, 2004; Malhotra, 2002a). Knowledge emanates from individuals, groups and sociophysical systems with future prospects of value creation (Malhotra, 2002a), and from which services are expected to flow. Learning can thus, describe the elimination of errors in a progressive way so that only better knowledge accumulates in the social system of an organization. The elimination of errors is through coordinated codification and abstraction that, overtime, preserves only tested facts and propositions Boisot(1998). From this perspective, a knowledge-base can be seen as hierarchically organized by which abstraction covers the laws guiding the implementation of facts and theories at a lower level. Cumulative knowledge best describes hoarding behavior, where apart from developing knowledge, an individual's or organization's main other purpose is to preserve it. This gives advantage to compete, especially in traditional settings with strong emphasis on vision and culture. This is true because an organization with high expectations and that knows best how to fulfill them is likely to be competitive in that sense.

An illustration of expectations accumulation and loss in expectations or knowledge is given in figure 5 below.

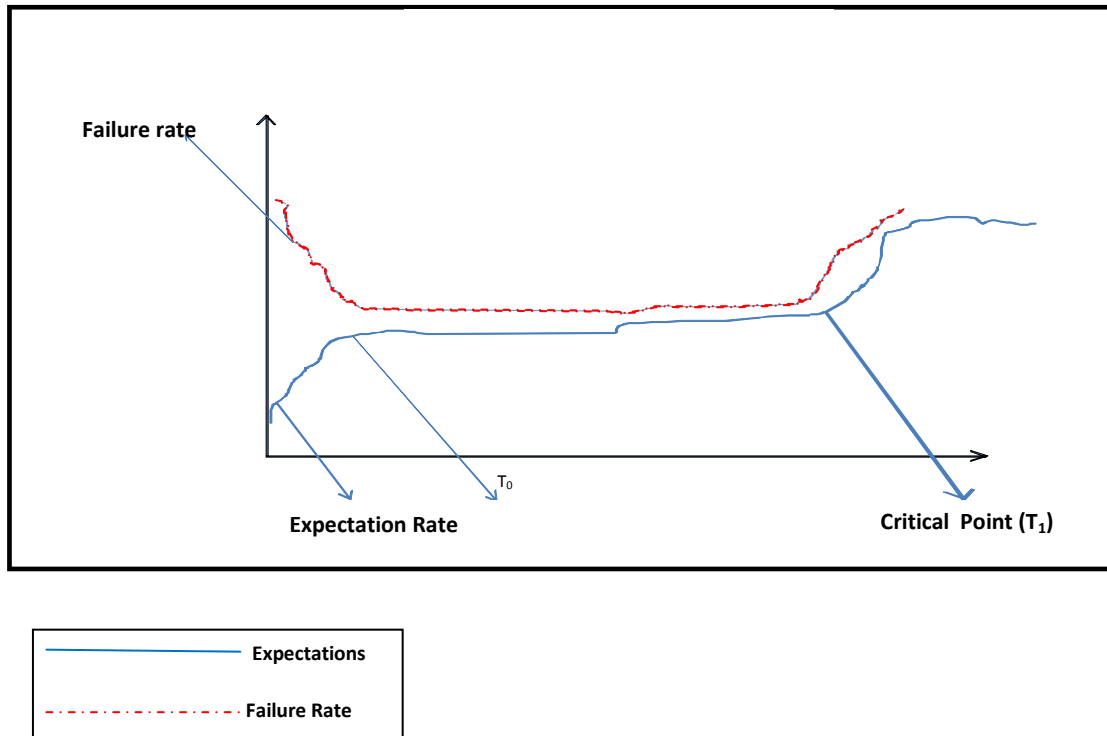


Figure 5: Demonstration of Employee Fulfillment of Expectations and failure rate, over time

The continuous blue line represents fulfillment of expectations over time and the red dotted line shows the failure rate of fulfilling expectations.

Before joining an organization, individuals will always possess some form of knowledge (expectations), hence the graph not starting from the origin. In fact, to some extent, everyone has knowledge or some expectations. The first sloping part of the graph represents increased levels of expectations due to the introduction of new ideas, organizational values and beliefs, job role requirements and system tools. This could be due to the effects of the self-fulfilling prophecy: referring to a sequence of events in which expectation of results induces behavior that increases the likelihood of the result occurring (Merton, 1948; Eden, 1990). As an individual rapidly learns and hence self-affirms, knowledge/expectation sharing increases which creates value. During this period of rapid learning, the likelihood of failure diminishes rapidly as well. Eventually, one reaches a peak where he or she has enough knowledge or becomes less active because of the lack of new expectations and relatively few challenging

problems to solve (T_0). It could also be due to too high expectations at that particular instance.

At time T_1 , however, the individual may start to lose knowledge due to lack of system response to threats and challenges, or *knowledge gaps* (huge differences in knowledge levels between people in an organization according to status) (Hyilton, 2002), leading to a huge difference between what an individual should know and what he or she actually knows (Zacc,1999). This can affect DE negatively because it depends on knowledge, which is taken as a set of expectations. If the system or organization responds positively at T_1 , expectations are likely to start increasing as shown in the figure 5. But, because the organization faces new challenges at that point in time, the failure rate starts to increase as well. It is at this point (T_1) that better strategies should be formulated to boost knowledge accumulation, with corresponding refocused ways of sharing. This calls for effective evaluation and restructuring of the present social system and corresponding technologies. Such undertakings would require an environment that supports intelligible integration and coordination of complex social skills (Dignum, 2004).

2.4.2 Knowledge as Paradigm Construction

The second perspective defines knowledge as cumulative but only in the confinements of a paradigm (Boisot, 2008). This viewpoint of knowledge or expectations represents chaotic or dynamic systems because paradigms replace each other overtime. By doing so, codifications and abstractions (causal description) may be totally lost and new ones constructed (Boisot, 2008). Codifications and abstraction may also just build up alternative networks of facts and theories that can either collaborate or compete. In a real sense, knowledge-networks are built by individuals and imposed on the data (Boisot,2008). Expectation constructs occur in the human mind and just as one can change one's mind, one can modify a construction that underlies the data, for instance, about one's valence for achieving a goal.

The paradigm-based approach provides more flexibility, for example, when customers change their minds; the paradigm needs to shift accordingly. Expressing learning, as paradigm development seems to fit dynamic markets compared with the cumulative viewpoint of knowledge because the latter may miss customer needs change (specially change that is spontaneous). A paradigm shift would involve to some extent, destruction of existing sets of expectations and building of new ones on different foundations. The strongest foundation is likely to be the tacit knowledge base. This statement highlights the idea that to be progressive may not necessarily mean to be cumulative. The current research recognizes that to foster DE, the two aspects of knowledge processes should co-exist. The significance of this is that, cumulative knowledge can through the masterly of process lead to DE transitivity and action prediction.

Paradigm based knowledge can on the other hand take effect were cumulative knowledge fails and can deal with dynamic processes. This reveals the duality nature of knowledge with one emphasizing structure while the other focuses on creativity. Structure refers to patterns of expectations and forms of behavior which become ordered and which persist over time. Boisot (2000) posited that the cumulative view of knowledge speaks about hoarding and altruistic behavior. With cumulative expectations, knowledge assets yield a faithful representation of the real world over time. The population is, thus provided with valid knowledge that would spread and replace the faulty knowledge. At the same time, the organization builds a more concrete knowledge base. This may fit traditional and product based professions such as engineering but less with the service based companies such as investment bank, whose focus can change easily and thus are less stable.

2.4.3 Coaching as a DE Strategy for Paradigm-Based Knowledge

For organizations that are highly sensitive to change and that depend mostly on paradigm constructs, specific coaching style can be designed while still encouraging cumulative learning. Some industries may effectively but indirectly capture and harness DE simply

because much of their learning is cumulative and they do not necessarily require paradigm learning. In fact, the learning type or requirements of an organization would help to identify the type of motivational variables needed. Coaching should therefore, be conceived with both cumulative and paradigm aspects. This research does not, however, discuss aspects of coaching in detail but recognizes that it is one way of developing and shaping DE in integrated work environments. Future research can investigate for example, the importance of coaching in developing DE.

Diagram 6 below illustrates the suggested paradigm constructs of knowledge.

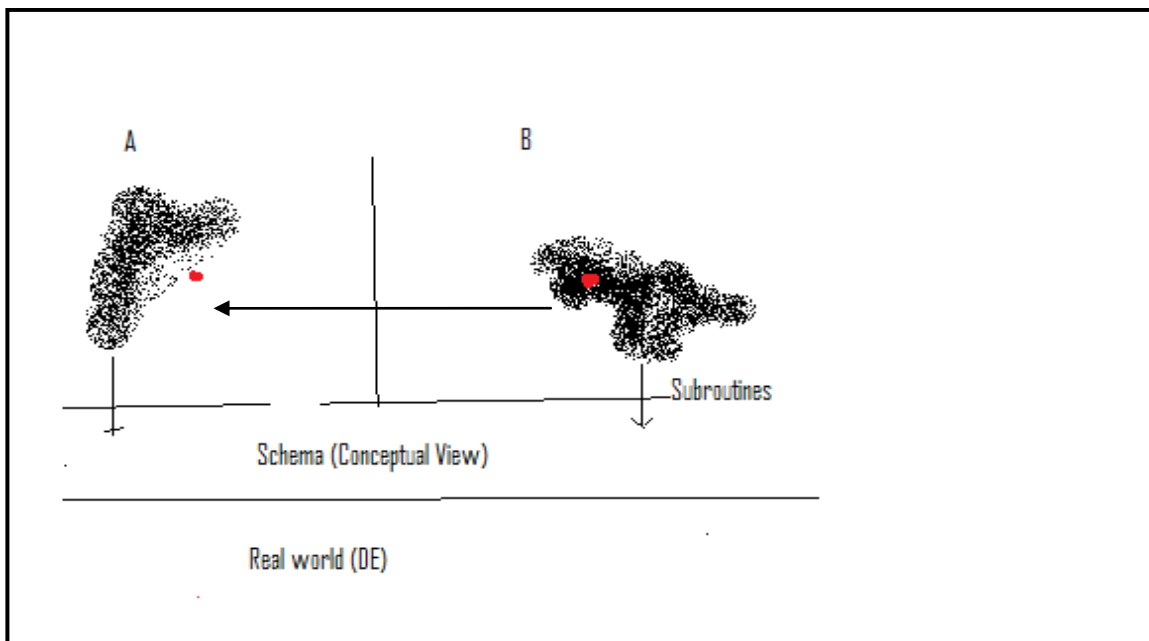


Figure 6: Suggested knowledge construction: Knowledge as a paradigm construct

In figure 6, sets of expectations or knowledge topologies build in two regions (Classes) A and B. These classes may be many and occupy other quadrants. The red dots represent limit points on which the black points converge in order to create concrete knowledge. Class A is more random, called the primary memory and interacts often with the real world but through the schema. Class B is a bit more static, called the secondary memory. It can only interact with the real world through subroutines especially in critical situations; otherwise, it maps itself into class A. This differentiates highly skilled acts and those that are less skilled.

Unlike the unskilled, skilled individuals would easily use subroutines to act discretionarily. Researchers have repeatedly noted that skills and abilities are part of many performance models (e.g Blau, 1986; Campbell, McCloy, Oppler, & Sager, 1993; Motowidlo, Borman, & Schmitt, 1997). Class B is denser than class A implying that the information points converge quite closely towards the limit point in class B. This means further that, B is more knowledgeable and has higher expectations than A. This is part of the paradigm aspect of knowledge, in which mobilization of knowledge variables is instantaneous.

Limit points become the critical motivational variables needed to construct a behavior or act. It is likely that employees, who are well guided and or coached on important aspects of their work and expectations, will mobilize knowledge faster and use it precisely towards the intended goals. Expectations should therefore, be centered on valuable processes through which employees can enhance performance. Interaction between elements of the classes and the real world is not direct, as all the processes have to go through a schema.

2.4.4 Discontinuity in Knowledge Assets

Knowledge discontinuity (lack of knowledge flow) can happen when the density of information flow ceases in a way that creates pockets of distinct groups within a population. Discontinuity can occur when there is a sudden change in strategy and or customer requirements. This can also be due to external interference such as changes in political climates or internal disturbances such as brain drain. Discontinuity in knowledge can create knowledge gaps leading to disruptions in DE development. Knowledge gaps can arise when there is a huge difference between what the company knows and what it should know. It can also happen when there is a big knowledge difference between the different levels of the organizational hierarchy.

As long as focus is rapidly shifting towards a more knowledge-centered culture, discontinuity is highly likely. In fact, just one person withholding critical knowledge can simply instigate a discontinuity. It can also arise because of lack of adapting due to eminent change in business focus and expectations. This reflects the need for manager-leadership roles and encouraging

unsolicited efforts to meet these challenges. It also points to the need for measures such as coaching in order to have an informed workforce.

2.5 IMPLICATIONS OF KNOWLEDGE TO DE

The process of exercising DE must be a well-informed venture and employees should use reasoned knowledge before an action. To reach certain sets of expectation (knowledge), increased levels of information around these expectations is necessary. With respect to DE, a system or an environment needs continuous flow of information that, encourages valence, expectancies etc. During the time of building DE, a topology forms whereby information points tend to concentrate around the knowledge points. When enough information builds in a particular area according to affinity, knowledge (expectations) points get instantiated causing the arousal to initiate an act in a certain direction. Knowledge points can be thus limit points around which the values of expectancies and other motivational and inspirational facts eventually accumulate. In practice, limit points or optimal points can be information variable averages. While accumulation of information variables is necessary for action, limit points might not even be in existence for DE to manifest.

Sets of expectations can pose as central learning points around which useful information and certain data revolve. Through reasoning, maximizing of information in a particular set can occur so that at every distance from the knowledge points, there should probably be an infinite information point. Intuitively, everyone moves with some knowledge, which grows with exposure to new information. Employees are, therefore, inclined to respond towards what they already know and the attitudes they hold. This implies that it is plausible to enforce leaning that modifies expectations that people hold. Learning processes such as coaching can thus be of prime importance in an environment that seeks to promote DE. Coaching requires directing, instructing and training a person or group to achieve goals or development. An important step is to continually identify gaps in DE knowledge. In environments that encourage virtual networks, coaching can occur online, anytime, and anywhere. Virtual

networks encourage dense knowledge spaces through technological connectivity, which promotes sharing. People live in spaces of connectedness that are better when they are dense because the need to learn from one another can easily be achieved through increased interaction. Dense spaces are, therefore, more DE capable and potentially powerful. Density further speaks of diversity but diversity requires objective leadership.

2.5.1 Effects of Knowledge Discontinuity (Flow Interruption)

When knowledge discontinuity occurs in an organization, the cumulative structure can still be contained mostly in small hierarchical groups but the paradigm is difficult to maintain. This reveals that the complexity in the paradigm aspect of knowledge development makes it unpredictable and since new knowledge just emerges, it can be suddenly eliminated as well. The structural part is disturbed in the paradigm when discontinuity occurs. On the other hand, the accumulation approach is more predictable. It can be seen as a stabilization approach since much of the erroneous expectations are removed out of the system over time. However, most of the (world) problems today are non-linear and the future in this case may not necessarily depend on the past.

2.5.2 Implications of Knowledge to Employees

When employees come to join networks, they are often, immediately faced with the challenging task of role expectations. This in turn affects their performance and ultimately their rewards. Since individuals make decisions based on the knowledge they acquire, then part of the DE inquiry must develop this knowledge within the social system. This implies that, unless knowledge about factors such as expectancy, instrumentality, valence and self-affirmation, is associated with the entire social system of the organization it would only account for a small fraction of performance. For the virtual environment, codification of information and knowledge that embeds in the databases represents the cumulative facts while the tacit knowledge in people's heads represents the paradigm process. Coaching for DE in

virtual environments should, therefore, include online discussions. It should also include intervention, which links the knowledge seeker to the knower through user profiling.

2.6 DE AND WORK-GROUP CONTEXT

The concept of professional network brings about other complex processes to the expectancy theory. One important factor is the emergent groups that are typically interest-based communities. Bess, Fisher, Sonn & Bishop (2002) noted that the notion of sense of community is further inferred in location (co-location or virtual location) but includes communities of interest. These communities describe some form of feelings that members have, of belonging, something that matters to one another and to the group (McMillan & Chavis, 1986). With such communities, people come to have a shared faith that member's needs are met through their commitment to be together (McMillan & Chavis, 1986). In the context of DE, a sense of community would strengthen interpersonal expectations among members in that members are likely to be aware of others who are willing to offer help and support.

In virtual environments, it is easier to capture and codify expended effort through written contributions or discussion forums or online chat rooms. Efforts, for example that is expended in the form of helping fellow workers by way of answering questions on discussions forums can be referenced and evaluated. What is crucial here is a formal process that lists attributes such as what effort and the frequency of occurrence of that similar piece of work.

2.7 IMPORTANCE OF TEAM WORK ON DE

Teamwork is a great strength to organizations that specifically rely on collaborative work. Teamwork encourages groups and cohesion between members. In fact, every work is essentially group based and requires collaboration to reach greater organizational goals.

Teams arise in the form of departmental belonging, work tasks especially based on a specific project or merely out of needs for example, to share in a particular area of knowledge expertise. Teams can be permanent and temporary depending on how long they last. Members are required to work effectively within a group but are often expected to work as effectively between groups and across sectors. This implies that organizations normally would have intra and extra role tasks that encourage such work behaviors. The importance of this arrangement is that, skills development and knowledge sharing become rapid which in turn improves work output of employees. Group work, although important to every organization, is particularly higher in value in the service industry such as hospitality where direct customer contact is very frequent (Mullins, 1998). Customer satisfaction in such industries is partly achieved through such interactions.

Other advantages of group working are: A. Improved productivity through collective responsibility. B. Improved DE quality and encouraging innovation. C. Taking advantage of the opportunities provided by technological advancement. D. Improving employee motivation and commitment.

As pointed out earlier, the general trend towards flatter organizational structures is another way of encouraging teamwork. It implies that sharing of information to meet expectations does not only occur among peers at the same level of ranking but with every interested party. It also means that organizations have to change their management approach accordingly as the whole workplace environment changes. Groups are some of the creators of climates that influence behavior and, therefore, cause people to choose between alternative decisions. This is useful and reflects on how people come to evaluate their competencies with respect to expectancies, the value they place on rewards, and the trust that given a certain performance occurrence, they are likely to attain certain satisfactions.

DE research cannot only be on obvious lines of thought that focus on individuals, but groups and ultimately the organization as a whole. Since groups facilitate the development of attitudes, they further shape work patterns, which in turn can define the organization's unique strength.

Initial work on DE recognized that, spontaneous actions around DE are likely to raise not only company performance but also secure competitive advantage and improved efficiency (Katz, 1964). Again, one important part of any success in realizing DE can only result from engaging the employees directly or indirectly as they exercise DE.

2.8 PROFESIONAL NETWORKS AS KNOWLEDGE BASES

Professional networks, for example COPs are part of a bigger strategy of the knowledge management process especially in the context of sharing. Employee networks are often created intentionally, but sometimes emerge due to needs and or project requirements, including expertise solicitation. Associated to professional networks are work teams. Co-located teams are traditional and well established compared to virtual teams that often depend on new technologies. Technology makes organizational memory rich by providing space for codification of knowledge and visibility of individual and team profiles. Resourceful individuals can subsequently, be discovered through system browsing.

Professional networks become important as collaboration increases, especially for corporate business. The need for team building is even greater today. Professional networks can be appropriate avenues from which competitive teamwork can develop. Beyond teamwork, organizations would normally want to establish cohesive groups in which value creation of the business can be re-enforced. Exchange of knowledge, finding solutions and developing appropriate work attitudes are likely to be achieved in this way. The other advantage is that, DE variable creation would be inseparable from the community, which creates them. With the aim of codifying information and listing information variables, professional networks as part of knowledge management are especially suitable for discretionary behavior propagation. This is partly because, members bring along different sets of skills. They, for example and in line with DE requirements, bring scripts or schemas that they rely upon to determine the proper sequence of action to follow (Abelson, 1972).

According to Guzley (1992), organizations have numerous climates that could actually be as many as psychologically connected clusters of events. These climates emerge because of common practices, beliefs and procedures that organizations follow. The importance of these climates is that they nurture teams and provide bases in which work behavior variables interrelate. Moreover, because of the randomness of the business variables, enormous opportunities occur that present employees with chances to use DE at all levels of the organization hierarchy. Organizations would be more progressive if employees were ready to seize opportunities of expressing their DE. For example, institutions that rely on virtual professional networks would benefit from high levels of online participation. This is partly because, with effective knowledge dissemination systems, employees would find it easy to exercise DE by way of answering questions and asking questions that would help them develop competencies. Part of the process may involve informing processes such as: (a). Expressing: which is the practice of self-reflexive conversion of individual knowledge and subjective insight into informational objects that are independent of the person. (b). Monitoring: describes continuous non-focused scanning of the environment and the gathering of useful just-in-case information. (c) Translating: involves the creation of information by ferrying it across different contexts until a coherent meaning emerges. (d). Networking: the practice of building and maintaining relationships with people inside and outside the organization (Stermann, 2000; Schultze, 2003).

The resourcefulness of these relationships becomes more effective as the groupings get dense. Environments with dense social networks provide breeding space for innovation and social capital. Although little is known and written about DE and coaching in dense networks, it is highly likely that DE would be more evident in there. Since knowledge is potentially driven by social relationships and structures (Coleman, 1990), increased collaboration would result in more shared expectations.

What employees seek in developing their expectancies is knowledge about whether their effort adds up to the performance requirements in a particular workplace. While these can be easily established in co-located workplaces, it may not be so in a virtual environment. On the other hand, such artifacts may rapidly establish in dense virtual networks with intense collaborations than in co-located platforms. This could be partly due to multiple feedback,

larger network or global network, and hence different perspectives from peers and cross-fertilization of knowledge.

Other benefits of professional networks, whether virtual or not include: 1. For knowledge workers, it is easier to create and generate new knowledge in a space that facilitates learning and quick flow of information. 2. Visibility of participants through user profiling can help meet certain expectations including trust, resulting in increased DE. 3. Understanding of expectancy related factors such as the reward systems through sharing of experiences with peers and online-published information.

2.9 SPECIALIZED NETWORKS CONTEXT

It is essential to, apart from looking at the human side of DE; consider the system side as complementary. Part of the benefits of a well-developed network platform is that, it facilitates rapid learning that is essential for DE development. Although trust is one of the difficult subjects in context of virtual collaboration, it can be realized by meeting certain expectations. Researchers have also posited that technology is in fact an expression of culture (Curtis, 1978). Therefore, in systems where trust is well established, the culture of sharing, connectedness and helping that are all essential to business growth are likely to flow as part of the system. Nevertheless, these cultures are likely also to be dependent on clusters of employees with their beliefs and other cultural values. For example, a population of employees within a firm would focus more on corporate culture while another population of the firm may orient towards industrial culture. In any culture, people are the agents of diffusing the knowledge but the actual delivery of the knowledge happens through systems such as technology. It is, therefore, imperative that in discussing behavior, environmental variables in which interaction occurs be considered.

A firm that seeks to utilize most of the hidden potential of its employees would explore individual attributes that are developed even from their families, friends and communities of residence. Individual agents typically would have multiple affiliations. Affiliations further include colleagues, clubs, charitable organizations etc and, are therefore, subject to multiple cultural influences that interact and overlies each other. Hence, apart from the typical ways in which employees contribute and come to develop expectations, there is always an information space guiding the employees' perceptions that firms can tap into. The best expectations do not always develop in the firm or hard skills. They may be soft skills, acquired independently and sometimes in unprecedented ways. They may include personal values that have developed through experiences and beliefs. For example, to some people, monetary gains and wealth may not be some of the most important reasons they would place valence high. It could be just that, they believe in helping others as a way of expressing love and, therefore, derive happiness and value of life. Although this may not be common in other cultures, it is plausible in African cultures that encourage helping one another as a way of showing love.

Identification of a population that exhibits coherent and useful patterns of cultural behavior is, however, not an easy exercise. However, where this is achievable, denser knowledge teams are likely to emerge, in which expectations grow and new ones develop. To maintain continued learning and increased performance, the nature of the tasks need to be challenging otherwise expectations will get less and employees will be less self-affirmed.

2.10 FORMAL AND INFORMAL WORKGROUPS

Formal and informal groups are part of any organizational activity system. While formal groups are clusters specifically formed by an organization, which are often functional (Cartwright & Zander, 1960; Hare, 1992) or task based, informal groups usually exist in the background and are temporary. Formal groups include designs such as divisions, departments, sectors and work units. Informal groups on the other hand, largely emerge from and are centered on individual interests such as areas of professional specialization, hobbies,

personal values and knowledge needs. Researchers have described informal groups as self-managing, self-directing or self-leading (Steward & Manz, 1999; Yeatts & Hyten, 1998). Allen & Pilnick (1973) noted that, these informal groups exert a powerful force on organizations, which can be constructive or destructive. In addition, as long as, performance is the objective, then DE is plausible. There is therefore, need to nurture and grow leaders in these environments. For example, interaction patterns within and outside organizations can affect employee motivation of participating in these groups. This is because emergent behavior grows (Dubin, 1958) out of the interactions among group members that can either focus on work, task related or purely social activities.

Concern arises when informal groups become cohesive. While cohesive groups can produce innovative work behavior, they can also fuel deviant behavior (Allen & Pilnick, 1973). Control over individuals is, therefore, common in cohesive groups than controls used by managers in formal groups (Barker, 1993).

Part of the reason of having a cross- sector data sampling was, to compare DE in different sectors and subsequently identify areas to improve. April & Katoma (2009) suggested that multilevel modeling is applicable in cases where DE is investigated by considering different levels of organizational influence such as leadership. In this case, a data sample of employees from different sectors, workplace situations and companies and other settings provided an adequate platform for multilevel analysis and modeling.

2.11 MULTILEVEL ANALYSIS: CONTEXTUAL MODELING

In order to explicate information further, multilevel data modeling was necessary. Multi-level data clustering arises when there is a possible hierarchical structure in the data. It deals with complex patterns of variability sometimes called random effects, with a focus on nested sources of data. In the current research, employees belong to workplaces defined according to location. They are therefore, nested in location. Apart from belonging to respective locations

of work, employees may fall under the influence of a particular leader. This implies that, employees first belong to a climate of their team cluster and second, to a particular leadership style. Part of the main aims of investigating hierarchical structures in this manner is to increase the detail of the discussion including contextual analysis (Robinson, 1950) and hence, provide room for unanticipated teams. Through this process, it becomes easier to determine whether certain variables are causes of variances in the response variables within a particular context.

Multilevel modeling is concerned with the unobserved heterogeneity that results from the affinity of entities (people) towards common interests and undiscovered behavior manifests because of skill or cultural orientation or simply needs and expectations. Using multilevel statistical perspective facilitates a better understanding of the role that contextual factors play in DE (Organ, 1990). Brief & Motowildlo (1986) suggested that, organizational citizenship behavior could be influenced by contextual factors. Figure 7 below illustrates units, represented by white and black circles. Units in white and black are under certain influences that cause them to shift towards a common mean as indicated by a bar between them. Some have drifted further from the central mean indicated by the horizontal red line in the middle and formed clusters around the common mean shown by small horizontal bars. Unobserved heterogeneity arises when data or units of data are nested. Specific response variables are, therefore, measured to determine how the unobserved variables affect the variability in the response variables. The response variables in this research are expectancy, instrumentality, valence and self-affirmation. These are the variables, which influence Discretionary Effort, but in turn are caused by other indicator variables.

The model specification is as expressed in equation 2.1 below. The variable Y_{ij} is the dependent or response variable, while μ_{ij} and e_{ij} represent the independent variables or what is known as the cluster levels for example co-location or virtual location. Gender and experience are the factor loadings investigated as to whether they cause the variability in the response variable.

The final model is specified as: $Y_{ij} = \beta_0 + \beta_1 \text{Gender}_{ij} + \beta_2 \text{Experience}_{ij} + \mu_{ij} + e_{ij}$2.1

The elements μ_{ij} and e_{ij} are measurement errors resulting from the approximation of gender and experience as the causes of variations in the response variable. Due to different governance influences at workplaces, it was important to investigate how response variables including expectancy, instrumentality, valence and self-affirmation varied in different workplace locations.

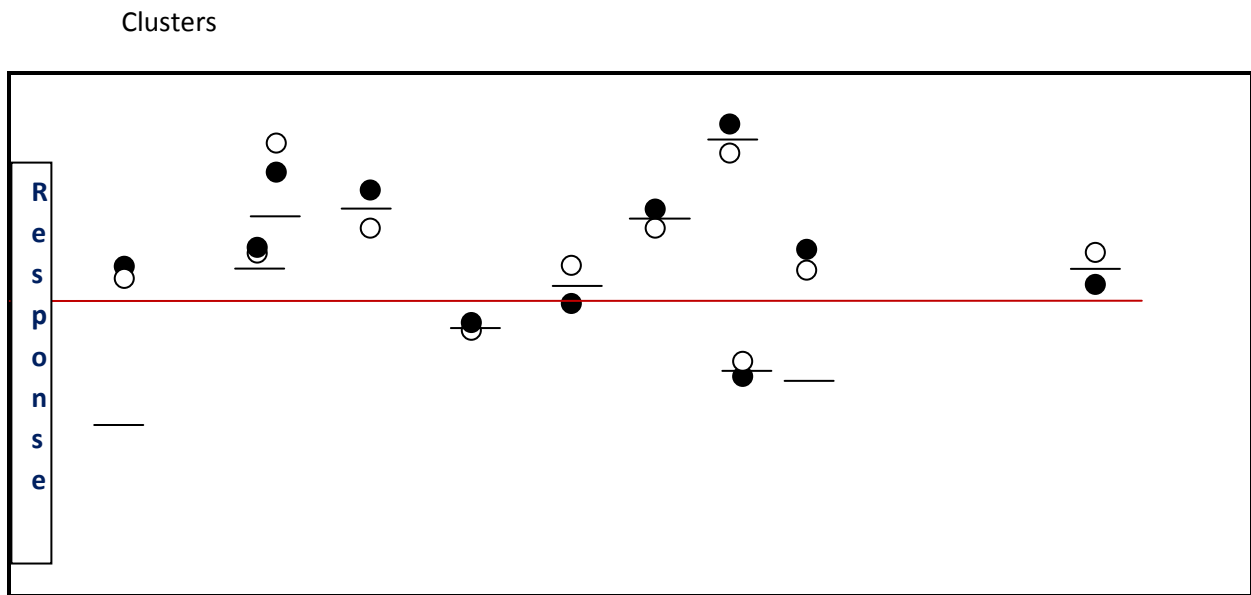


Figure 7: Units of views clustered around means

In complex environments in which social challenges play an important role, multilevel analysis can be very useful. Specifically, the process of analyzing data at both the micro and macro level is vital for strategic planning. Secondly, by involving other variables such as biographical or explanatory data variables, accurate results at the micro level (e.g cluster level) can be obtained, rather than focusing entirely at the macro (e.g sector level) level of DE. This procedure underscores also, the importance of including the latest business strategies such as service product based sectors and knowledge based concepts. Once multilevel requirements are met, different variables can then be tested as influencer variables,

which may be directly related to the service, and knowledge based activities, resulting in finer levels of empirical granularity and clarity. In this way, more research areas can be identified.

Multi-level analysis is also used in other different fields of study and is referred to as random effects. These fields of study include physics, engineering and business. An example of this application would be investigating certain explanatory variable, which tend to influence constructs indirectly (Commenges et al., 1994). Other studies in this area involve analysis of personal data about relationships of individuals: each respondent is, in this case, asked to mention other persons to whom he or she relates according to some specific criterion, and to give further information about the relation with this person. In this context, respondents are referred to as 'egos' and the mentioned relations as nominees or 'alter'. In the resulting data set, alters are nested within egos. Similar studies were conducted by Sijders, Spreen, & Zwaagstra (1994) and by Van Duijn, Van Busschbach, & Snijders (1999).

2.12 SUMMARY

Chapter 2 introduced auditing as an essential part of monitoring DE progress. It then looked at knowledge and the knowledge worker. Knowledge and learning concepts and strategies have been discussed as critical parts of DE. The knowledge worker concept was then explained. Motivation concepts were derived from these aspects to suit the current business needs. Accumulation and paradigm knowledge construction were discussed and the dangers of knowledge discontinuity presented. Context was further discussed by specifically looking at the concept of professional network. Professional networks include contexts such as teams, coaching, members who are co-location and virtual networks and multilevel concepts. These are the actual environments in which employees operate. This helped to derive the indicator variables and define what corporate memory should consist of, to capture effective information around the interacting DE variables.

CHAPTER 3: THEORETICAL FRAMEWORK

3.0 INTRODUCTION

Chapter 3 introduces briefly the statistical view of expectancy and associated process of deriving DE variables. It then discusses fundamentals underlying the DE conceptual framework. The emphasis in this chapter is that, unless effective bases for hypotheses construction are appropriately established, discussing DE in an integrated environment in integrated environments would not be effective. This means that, clear steps are required to provide context and a concrete basis of the framework while retaining the meaning of the expectancy and the intended DE model.

The theoretical framework draws from the previous chapters one (1) and two (2). It prescribes the expectancy variables needed for performance and subsequently DE. Each of the composition of the indicator variables is explained as a summary of the theories in chapter (1) and (2).

3.1 EXPECTATIONS

Expectation in statistical terms can be defined as the mean or weighted average of a random variable value of the sample data (Dempster & Laird, 1977). Knowledge (which can be seen as a set of expectations) is a set consisting of probability distributions (Boisot, 2008) altered by information emanating from peers, systems and from the outside workplace environment. Sets that determine the level of DE are created from a combination of sets of probability distributions from the data representing expectancy, instrumentality, valence and self-affirmation, which determine indicator variables.

Two types of variables exist, namely, the latent and the manifest. Latent variables are factors that cannot be directly measured and, therefore, they have to be associated with manifest

variables, which are measurable (Commenges et al., 1994). Traditional statistical operations have been very effective at measuring the manifest variables mostly based on inference. Recent developments, especially in matrix representation of data have led to extrapolations of information in ways that have expanded modeling strategies to include analysis of latent variables. Apart from the benefits of interpreting complex data structures, it is also easier to measure the relationship between latent variables and as well as between manifest variables and latent variables. From a theoretical point of view, abstract hypothetical structures can develop with less concern about their measurement.

The construction of the measurement is based on the expectancy and behavior variables that are hypothesized to measure DE constructs. These are the basic facts that would later feed into the DE model. The next section, explains the expectancy concept through which the measurement instrument and consequently the hypotheses were derived.

3.1.1 Effort-Performance Expectancy [EP]

Effort performance expectancy is an employee's belief that desired levels of performance are possible, given the resources, competencies and skills one possesses. Performance efforts are likely to be exercised if employees felt confident in the skills and competencies they possessed. This would motivate them to take courage and have a sense of purpose to stand up for what they believed. In times when, employees felt they did not know much to contribute, they would honestly acknowledge to the network members that they were unable to do so.

Employees should believe that with some effort, they are capable of learning the required amount of knowledge, and at the required pace in order to work competently in all workplace eventualities and situations. They also believe that their network members would match their effort in ensuring shared success in overcoming challenging tasks/projects or navigating areas not previously ventured. For any given situation, employees would strive to possess both the required technical and organizational skills for effective performance.

3.1.2 Interpersonal-Performance Expectancy [IP]

Leaders can inspire and guide their followers to attain their desired outcomes through social influences (Spreitzer, 2006). While such influences often occur in formal settings, the current technological platforms (such as social software) provide for informal learning structures through social network systems. Recent research on mentoring processes and sharing in professional networks has indicated support for personal learning and the development of individual careers (Chandler & Kram, 2005). The earliest suggestions of learning within professional networks or communities of practice can be attributed to Lave & Wenger (1991). The view was to facilitate gradual development of knowledge of new employees with the guidance of a mentor. With time, the employee would possibly become a key player of 'the community', when he has gained enough knowledge required to perform his work function. The groomed 'skilled' employee can then continue the cycle by passing on knowledge to new entrants. By passing on knowledge, mentors in turn validated their career learning and accomplishments. This would often provide them with a sense of fulfillment that comes from giving something back to the organization or profession at large (Reisz, 2002). An informal mentor can, apart from providing coaching, offer advice and soundboard reactions and help in other areas of learning through unstructured or casual illustrations (Senge, 1990). Pullins & Fine (2002) found similar results and argued that, by participating in mentorships and helping peers, the mentor achieves higher order rewards in addition to the lower order rewards such as pay. In many other ways, the mentors can also use these activities in their own performance appraisals. A mentoring exercise can invoke the mentor's self- recognition and re-motivate the individual to give further attention to other performance areas at work (Pullins & Fine, 2002).

3.1.3 Effort-Learning Expectancy [EL]

The expectancy theory states that individuals engage in behaviors to the extent that they expect those behaviors to result in positive outcomes (Vroom, 1964). The current research

suggests that to achieve workplace goals, emphasis should be on personal learning that can yield value-added learning benefits. This is in line with Senge (1990) who pointed out that for an organization to be successful, it is necessary for people to learn new skills and develop new orientations. In order for a company and individual to advance in business, the individual must change in some way, by increasing one's knowledge and/or skills (Dobbins and Pettman, 1997). Rampersad (2006) further argued that for any significant organizational change to take place, employees must first change and do things differently. Change in this regard can begin with self-learning which in fact starts with self-knowledge (Rampersad, 2006). Rampersad (2006) realized that if there is an effective balance between the interests of an organization and those of an employee, then employees would work with greater commitment towards the development of the organization. This viewpoint explains partly, the DE essentials where employees become motivated to contribute more to the organization simply based on the good treatment they receive, including the value of reciprocity.

3.1.4 Leading-Visibility Expectancy [LV]

With the rapid changing business world due to increased competition, companies that support career self-management are likely to have highly skilled and flexible employees (Meister, 1998). Employees must understand the need to continuously refresh and update their skills to meet present challenges (Meister, 1998).

As an organization grows and increases its knowledge base, the company builds its intellectual capital and knowledge becomes a competitive asset (Bogdanowicz & Bailey, 2002). Education and career development of employees are valuable commodities through which organizations can hold a distinct competitive advantage (Leach, 2001). The rate of generation of new knowledge around the globe is increasing exponentially (Bourner, 1998). Bourner (1998) noted that other than focusing too much on delivering knowledge, organizations should aim more on helping employees to learn how to find the necessary knowledge on their own. Employees must understand that once their existing knowledge becomes part of the organization's intellectual capital, they need to keep engaging in acquiring new knowledge, to prevent themselves from becoming redundant (Garrick, &

Clegg, 2000). By acquiring new knowledge, employees can learn to adapt easily but more important it is the employee's learning that enhances their capacity to create knowledge (Senge 1990).

3.1.5 Network-Performance Expectancy [NP]

Network-Performance requires that network members believe that their colleagues are committed to the goals and objectives of the network. This would imply monitoring whether network members contribute to shaping organizational policy, work practices and learning processes to promote network effectiveness. Secondly, members should assess the reliability and dependability of an individual's network members, for example, whether he attended all face-to-face meetings, completed tasks and projects on time. It calls for eliciting of accurate and constructive feedback from network members regarding their understanding or misunderstanding of important knowledge relating to the network's work. Thirdly, it requires members to identify barriers that sometimes hinder the self-determination and self-motivation of one's network members in achieving the recognition of network goals (April & Katoma,2009). Finally, it involves monitoring whether individual network members proactively seek project engagements, and periods of projects, that suit or align with their personal team styles (Bouty,2000).

3.1.6 Internal-Recognition Expectancy [IR]

Internal-recognition expectancy requires that, a network member should believe that he or she is recognized (with little or no financial rewards), both within the network and the greater organization, for the contribution he or she has made. Employees can, thus feel satisfied with the amount of recognition they receive for contributing to their network and organizational success. Employees may even prefer non-financial rewards to financial rewards. They would also look for alignment (connections and gaps) between the feedback they get and the team or organization recognition used. Preferences may for example, be specific recognition and

feedback concerning one's contribution and not general statements. Employees may also prefer feedback and recognition from fellow network members than from other organizational members and general stakeholders (non-network members) (April & Katoma,2009).

3.1.7 Mutual-Reciprocity Expectancy [MR]

Mutual reciprocity involves network members returning directly, or indirectly, aid, resources and/or friendship offered by another network member. Employees should feel pressured to enforce equal sharing of resources and aid (by themselves, and others) within acceptable work time frames. Leaders must mobilize opposition against a member who would be a dominant individual, but who does not appear to share the same, underlying intent and values of the network (e.g., public complaint, ridicule, ignoring). Employees must consistently work at, and seek through the eliciting of their viewpoints and perspectives, the integration and alignment of work goals with the goals of reciprocal members. They should continuously seek to improve network processes and communication to achieve more effective network cooperation and higher levels of reciprocity among network members. They must also share reputation and successes of network members with other networks (not necessarily organizational stakeholders or related to organizational outcomes) (April & Katoma,2009).

3.1.8 Performance–Outcome Expectancy [PO]

By performance-outcome expectancy, a network member should believe that what they are doing will lead to certain outcomes. They should strive to establish measurement criteria, using quantitative and qualitative measures, of the impact of their network's contribution to an organizational goal(s). Members of the network should ensure personal goals and needs are aligned with the desired organizational outcome(s), so that their needs are gratified when achieved. They should periodically highlight and celebrate network members' behaviors and actions that appear to be aiding the achievement of the desired organizational outcomes.

Network members should personally play a pivotal role in consistently ensuring the achievement of desired organizational outcomes (i.e., I am needed and valuable to organizational success) (April & Katoma, 2009).

Members should often draw from their intuitive sense and faith in believing that desired organizational outcomes will be achieved, even when they do not look possible to others. They should also comment or provide further insights on the impact of this expectancy on their self-esteem and productivity.

3.1.9 Team-Sustainability Expectancy [TS]

Professional network teams or communities of practice should provide an ideal platform for developing, sharing and entrusting of information within an organization (Chua, 2006). Networked platforms that use latest technology to expand information flow represent an extension of organizational culture (Chua, 2006). Managers understand that to compete in the current global arena, old organizational cultures become barriers to being innovative and productive (Gadman & Cooper, 2005). By using communities of practice, which are essentially a natural part of organizational life, cultural barriers reduce. Communities of practice sometimes develop into strong professional teams that overlap without recognition by the organization (Chua, 2006). On the other hand, work teams can fail during infancy due to unrealistic expectations regarding the effort during start-up (Lathin, 1995). However, the success of team sustainability may lie in the effective use of positive cognitive strategies at the team level (Houghton, Neck, & Manz, 2003). Tee Ng (2004) argues that individuals in a work team are of more value than the sum of the individuals together. However, this viewpoint would only be useful if the whole was greater than the sum of the individuals.

In addition, organizations that aim at successfully using professional networks to foster knowledge must implement processes to sustain and protect the team synergy. This view supports the findings of Groesbek & Van Aken (2001) who noted that successfully sustaining

team wellness requires ongoing attention to both internally driven team processes and externally supported processes.

3.1.10 Individual-Network Learning Expectancy [NL]

According to Senge (1990), learning organizations are those where employees continually expand their capacity by striving to obtain desired results and where new and expansive patterns of thinking are nurtured. He (Senge, 1990) noted that the employees' visions should further become the organization's vision. Again, the capacity for an organization to be a learning organization starts with an individual (Barker & Neailey, 1999). Geiger & Turley (2005) realized that for an organization to be effective, individuals must share their personal knowledge with others. By creating and sharing knowledge, an organization moves up altogether. People prefer to be associated with something that is larger than they are, in terms of being connected and of being generative (Senge, 1990). The anecdote of knowledge creation by employees who learn rapidly and share their knowledge has resulted into the concept of knowledge worker. Garrick & Clegg (2000) stated that the knowledge worker continuum is a calling that is equivalent to a vocation and that knowledge workers help organizations and industries meet contemporary market challenges. To devoted workers, individual learning gets to the core of what it means to be human (Senge, 1990). Through learning, they are able to re-create themselves and re-motivate what drives them to perform.

3.2 CONCEPTUAL FRAMEWORK

The conceptual framework of this study develops from the aforementioned expectancy constructs presented in figure 8 below. Figure 8 illustrates the links between the expectancy variables and the discretionary behavior components. It further shows the descriptive aspects of the measurement instrument. While Discretionary Effort measures have been attempted and modeled in various ways, this research gives an expanded view of DE including the variance in DE at the individual and work level.

3.2.1 Hypotheses

The initial hypotheses on the expectancy definitions are listed below:

1a H₀: There is no positive correlation between effort-performance expectancy [EP] and discretionary behavior.

H₁: There is a positive correlation between effort-performance expectancy [EP] and discretionary behavior.

1b H₀: There is no positive correlation between interpersonal-performance expectancy [IP] and the second level outcomes (work behavior).

H₁: There is a positive correlation between interpersonal-performance expectancy [IP] and the second level outcomes (work behavior).

1c H₀: There is no positive correlation between effort-learning expectancy [EL] and the second level outcomes (work behavior).

H₁: There is a positive correlation between effort-learning expectancy [EL] and the second level outcomes (work behavior).

1d H₀: There is no positive correlation between leading-visibility expectancy [LV] and the second level outcomes (work behavior).

H₁: There is a positive correlation between leading-visibility expectancy [LV] and the second level outcome (work behavior).

1e H₀: There is no positive correlation between network-performance expectancy [NP] and the second level outcomes (work behavior).

H₁: There is a positive correlation between network-performance expectancy [NP] and the second level outcomes (work behavior).

1f H₀: There is no positive correlation between internal-recognition expectancy [IR] and the second level outcomes (work behavior).

H_I : There is a positive correlation between internal-recognition expectancy [IR] and the second level outcomes (work behavior)

$Ig H_0$: There is no positive correlation between mutual-reciprocity expectancy [MR] and the second level outcomes (work behavior).

H_I : There is a positive correlation between mutual-reciprocity expectancy [MR] and the second level outcomes (work behavior).

$Ih H_0$: There is no positive correlation between individual-network learning expectancy [NL] and the second level outcomes (work behavior).

H_I : There is positive correlation between individual-network learning expectancy [NL] and the second level outcomes (work behavior).

$Ii H_0$: There is no positive correlation between performance-outcome expectancy [PO] and the second level outcomes (work behavior).

H_I : There is a positive correlation between performance-outcome expectancy [PO] and the second level outcomes (work behavior).

$Ij H_0$: There is no positive correlation between team-sustainability expectancy [TS] and the second level outcomes (work behavior).

H_I : There is a positive correlation between team-sustainability expectancy [TS] and the second level outcomes (work behavior).

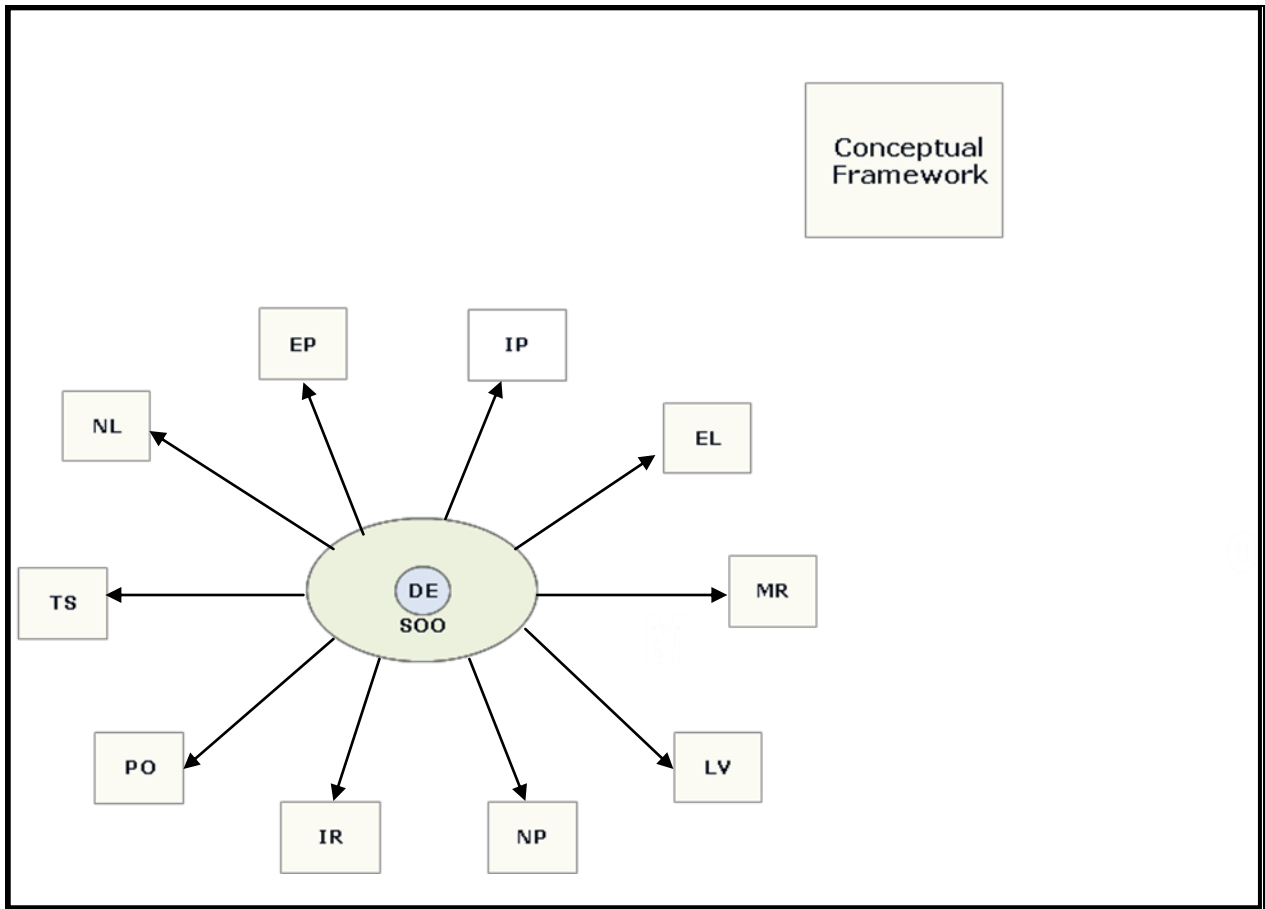


Figure 8: DE conceptual framework

DE: stands for Discretionary effort as the core value in the centre of the DE model

SOO: Stands for the second order outcomes of the DE model

The outer variables in boxes represent the expectancy values

The second set of hypotheses develop from personal behavior resulting from perceived performance expectancies from the first level expectancy variables. Respondents measured the frequency with which they exhibited behavior perceived to result in discretionary behavior to achieve desired outcomes. It is important to note that, the first and second level expectancy variables exist in a cycle. There are six sets of behavior categories that are considered as instrumental variables.

3.3 INSTRUMENTAL OR TERMINAL VARIABLES

Instrumental variables (behavior) are the means by which goals and end state are obtainable. In other words, they are instrumental values or desirable modes of behavior (Rokeach, 1973). O'Reily et al. (1991) posited that, values are normative beliefs that can guide behavior. Organizational values on the other hand are beliefs held by groups or organizations (Enz, 1988). Terminal/final values are outcomes such as money, promotion, noted by Meglino & Ravlin (1998) as variables that define organizational culture.

3.3.1 Effort Expectancy Construct (EE)

The effort expectancy construct involves providing network members with the necessary resources, to play meaningful roles in something that is quite significant to the network, and/or organization. This enables individuals to hold and insist on, the same high standards of cooperation as they personally demonstrate in their dealings with their network members.

Effort expectancy construct requires network members to seek to involve themselves in activities that expose them to knowledge and learning. This could eventually aid their future career(s), inside their current organisation, or outside of it. They should for example put aside specific time slots/periods for sharing, informally and formally, personal knowledge and insights with other network members. Individuals should make an effort to personally play a pivotal role in consistently ensuring the achievement of desired organisational outcomes (i.e., I am needed and valuable to organisational success) (April & Katoma, 2009).

3.3.2 Performance Expectancy Construct (PE)

Performance expectancy behaviors should include acts of showing courage and sense of purpose to stand up for what employees feel and believe, in pushing for the desired levels of network performance. Network members should, when appropriate, honestly acknowledge to their network when they are unable to contribute significantly or they are “lost” (i.e., don't

fully know what I am doing nor do I know what to do next). Members should believe that, with some effort, they are capable of learning the required amount and at the required pace, in order to work competently in all workplace eventualities and situations. They should be ready to also provide accurate and constructive feedback to their network members regarding their understanding or misunderstanding of important milestones relating to the network's work. Most of these can be achieved in consultation with stakeholders of their network's contribution (not network members), that can build a coherent set of both achievable, and long-term goals for the professional network (April & Katoma,2009).

3.3.3 Workgroup (WG)

Workgroup goals should be purposefully explored sometimes involving unconventional ideas and different approaches that could eventually (currently, or in the future) be important for the network to know. In similar ways, workgroup leaders should monitor whether individual network members proactively seek project engagements, and periods of projects, that suit (are aligned to) their personal team styles. Individuals should consistently work at, and seek through the eliciting of their viewpoints, the integration and alignment of personal and work goals with the goals of reciprocal (other contributing) members. Network members should be encouraged to continuously seek to improve network processes and communication to achieve more effective network cooperation and higher levels of reciprocity among network members. In so doing, they would be likely to build a broad base of support, for their network, among key stakeholders by identifying and positioning ideas to satisfy their needs, interests and concerns (April & Katoma,2009).

3.3.4 Emotion Orientation (EO)

Emotional orientation involves allowing for the expression of emotion as it relates to the performance and under-performance of network members, without allowing it to impact negatively on others or the organisation. It also encourages individuals to proactively seek

out opportunities to assist network members in challenging projects, or help them to do something extra, beyond the minimal requirements of workplace performance. Preferences such as individuals seeking non-financial rewards over financial rewards (extended leave, flexible work hours, attend conferences, sent on courses not related to work issues, explicit peer recognition, etc.) become feasible (Bouty,2000). Others take the form that their preference is for specific recognition and feedback concerning their contribution (not general platitudes & global statements) from other network members. On the other hand, certain employees would consistently seek to demonstrate high levels of respect for their network members in conversations and dealings with other non-members (in and out of the presence of the network members) (April & Katoma,2009).

3.3.5 Positive Comparison with peers (PC)

Positive comparison would include employees seeking regular feedback; through which new and different information and knowledge is shared with their network members (information and knowledge that they may not have come across). Secondly, it includes individuals believing that their network members will match their effort in ensuring the network shares success in overcoming challenging tasks/projects or navigating areas not previously ventured into. The network as a whole should share reputation and successes of network members with other networks (inside and outside of the organisation). It should also be prepared to deal with would-be dominant network individual's, who no longer appear to share the same underlying intent & values of the network (e.g., warning, communicate, formal complaint, etc.). Lastly, individuals should ensure that network members' personal goals and needs are aligned with the desired network outcome(s), so that their needs are gratified when achieved (April & Katoma,2009).

3.3.6 Efficacious Action (EA)

Efficacious action requires that network members expend their personal energy and effort only in those things/processes/projects that currently have personal learning benefit for them, or will have in the future. They should actively seek to ensure the transference of their knowledge and insights across, and outside their, discipline/functional boundaries (both within and outside of the organisation). Members should regularly subject their ideas to scrutiny from non-network members (i.e., present at conferences, publish in international peer-reviewed journals, write books, etc.). Members should also strive to achieve more of the network milestones/goals compared to other network members, given equal access to resources and aid. They should further seek to pull knowledgeable people, and sources of learning and knowledge, into their network (who/that do not yet have informal, or formal, membership of my network) (April & Katpoma,2009).

Discretionary Effort Framework

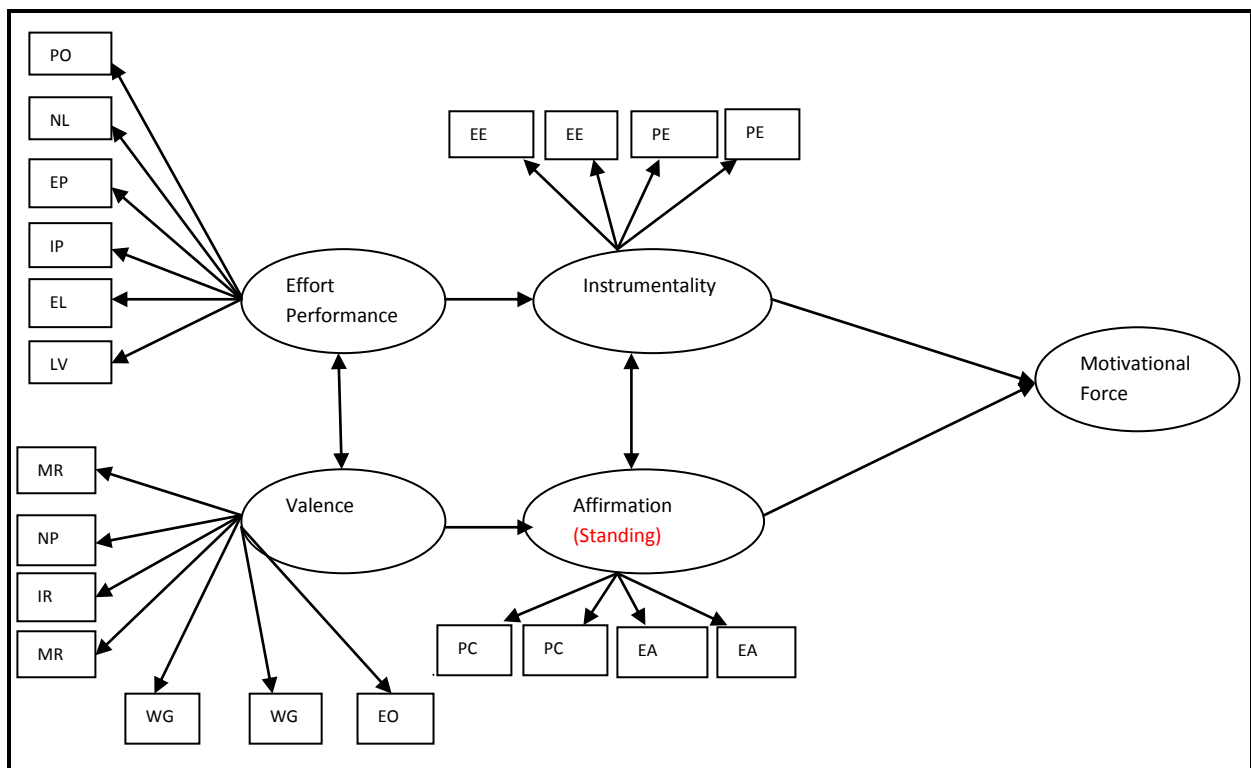


Figure 9: Discretion Effort Framework with suggested variable scoring components (April & Katoma,2009)

Figure 9 illustrates the improved DE framework including the indicator and latent variables. The term standing on the affirmation component indicates that variables can be added or removed from the framework.

Apart from the aforementioned item scale constructs, demographic variables were also included. These included industry of service, current age of the respondents, Gender, Nationality, Ethnicity and highest organizational position attained. The rest included the years of work experience, current and prior qualification, Co-located, and Virtual location items. In certain circumstances, dependent demographic variables are compared to the discretionary variables of expectancy, which are assumed independent. This is particularly useful when independent variables are suspected as the causes of variability in the biographical variables.

3.4 SIGMA ALGEBRA: LINKING PROCESS AND CONTEXT

This section focuses on the maximum likelihood estimation (MLE) used for estimating parameters. It discusses sigma algebras, measure theory and explains their specific applications to DE.

3.4.1 Sigma Algebras and Expectancy

Only defining variables as information carriers do not convey much about the usefulness of the content. The codification of employee needs and other work related behavior variables is an indication that most of the things that are required for discretionary constructs are in fact present in organizational processes and programs. The emphasis towards collaborative work implies that systems should be capable of transferring data and information in a systematic and intended order and quality to support learning and interpretation of expectations. However, in order to achieve this, data and information has to be properly defined, packaged and re-packaged to match the requirements of the employees that would ultimately make sense out of it and use it (April & Katoma,2008).

Throughout history, symbolical expression of ideas has been an enhancer of knowledge sharing and a medium through which people have contributed collectively to providing business solutions. When hypothetical ideas have been developed, it becomes necessary that a higher form of representation be attached to develop a paradigm coherently. Secondly, symbols introduce the process aspect of phenomenon because, with symbols, it is easier to codify or convert tacit to explicit knowledge by way of expression. The definition of knowledge as sets of expectations is a concrete precursor for quick representation of tacit knowledge about DE variables. This concept provides a basis for partitioning of knowledge variables so that classification of knowledge items is achievable. It, therefore, becomes easy to identify constructs, which in turn help to determine the state of the system as far as knowledge is concerned. Knowledge audit becomes easier to conduct if the discretionary variables are well defined. Additionally, extension of paradigms must be done systematically, and the procedure must be scientifically adequate for effective interpretations as expected in the dynamic economy (April & Katoma, 2008).

This is exactly when a *mathematical model* is needed. The introduction of the sigma algebra here is firstly, to stress that, whether cumulative or paradigm approach is used, knowledge can be represented in a more coherent fashion. Secondly, sigma algebras include definitions of probability distribution, which are instrumental in probabilistic data analysis such as expectancies. Thirdly, measures are defined to investigate sigma algebras and therefore, mappings in terms of linear and non-linear relationships can be established (Kolmogorov, 1975). Once the distribution of the data is ascertained, it is simpler to compute the likelihood of an outcome and hence predict for example, an overall DE in an organization.

The other advantage is that, sigma algebras can cater for both inference that is dependent on history such as the Bayesian networks and the more random such as Markov Chains. This relates also to cumulative and paradigm methodologies of learning. The main point here is that, unless theory can be effectively contained and properly channeled, the overwhelming production of it would not translate meaningfully into applications and would, thus hinder the

path to understanding. Further, theories that seem to contradict each other should be substantially tested and treated effectively to avoid loss of meaning and undue disqualifications. With a more mathematical definition of hypothesis, applications can readily be developed because entry into measure is plausible (Kolmogorov,1975). Although, knowledge (as of expectations) has been probed into, at different levels, the process aspect has not been dealt with in-depth. What is usually obtainable is theory and storage, and less practice. It is, however, rare to find a useful concept that is not and would not be a point of technological application. Moreover, the emphasis on professional networks as a knowledge management tool is an indication that DE can be encouraged by these tools (April & Katoma,2009). The following is a description of the mathematical concepts that the DE framework builds on.

Informally, a set is defined as a collection of objects belonging to a particular class. The objects are called elements (Schneider, 2002). This is very important because measures are rigorously established on this principle. Let X_1 be an expectation item, with $x_{11}, x_{12}, x_{13} \dots x_{1n}$ as its metadata, for example valence ratings. X_2 would be another item with similar metadata. Let $X_1, X_2 \dots X_n$ belong to a sigma algebra X . A sigma algebra X can then be taken as a collection of sets, with $x_{j1}, x_{j2}, x_{j3} \dots, x_{jn}$ as elements of set j .

Let X be the collection of these metadata information sets. Given a sample space $\{X, S\}$, a σ -algebra χ on a set S , is a family of subsets of S . By definition the empty set $\phi \in \chi$ and if $A \in \chi$, then $(S-A) \in \chi$ and if A_n is a sequence of subsets of S , then the union $(\bigcup_{i=1}^n A_i) \in \chi$. Thus, a sigma algebra is a Boolean algebra as these closure properties fulfill the OR, AND and NOT operations. Sets in the form of sigma-algebras have been used to model information (Dubra & Echenique, 2001) and can naturally be extended to model expectation constructs. There are also other algebras, but σ -algebras are particularly appropriate in this case because a probability measure is applicable to any σ -algebra, thus providing a computational basis for DE.

3.4.2 Measure Theory and Maximum Likelihood Estimation (MLE)

Measure theory is a branch of real analysis, a branch of mathematics that investigates sigma algebras. Some information retrieval, use measure theories to determine the “importance weight” of a particular word in a document i.e., the ability of the associated word to single out the document from the others in the knowledge base (Pitman, 2003).

Formally, a countable additive measure (μ) is a function defined on a sigma algebra X in sample space $\{X, S\}$ with range $[0, \infty]$. A measure is a function that assigns a number to a set, with properties as below:

1. The empty set has measure zero
2. Countable additivity or σ -additivity: if E_1, E_2, E_3, \dots is a sequence of pairwise disjoint

$$\text{sets in } X, \text{ then } \mu\left(\bigcup_i E_i\right) = \sum_i \mu(E_i). \dots\dots\dots 3.1$$

The members of X are called measurable sets. If the range of μ is $[0, 1]$, then μ forms a probability measure, applicable to random variables. This is very important in expectancy because expectation variables are generally probabilistic. A probability space (X, S, μ) incorporates a sample space S , defines a set of events of interest, the σ - algebra X , and its probability measures μ .

Sigma algebras are linked to maximum likelihood estimation (MLE) (Tulcea, 2003) as follows. Given an independent sample space x_1, x_2, \dots, x_n , in some $\{X, S\}$, with a σ -finite measure μ on X that has distribution $f(\chi, \theta)$ where θ is unknown; MLE can be used to find the most likely value of θ . For n observations, x_1, x_2, \dots, x_n , the likelihood of any particular value for θ is given by

$$L(\theta | \chi) \equiv p(\chi | \theta) \equiv \prod_{i=1}^n p(x_i | \theta). \dots\dots\dots 3.2$$

This holds because it is known from the multiplication rule in probability theory that the joint probability of these observations is $p(X|\theta) \equiv \prod_{i=1}^n p(x_i|\theta)$. The primary reason for constructing a likelihood function is that, given a sample data set, one would want to solve for the values of the parameters that make the joint probability of the data most likely or optimal. Therefore, the first step is to maximize $p(X|\theta)$ by differentiating the equation and solving for θ . A fundamental result is that, as the sample size increases, L divided by the sample size n tends to converge to a constant function. In the process, the distribution of θ becomes increasingly concentrated around the true population parameter θ_o .

3.4.3 Example 1 Demonstrating simple evaluation of DE

As a simple example, suppose a coin has probability p of yielding heads in a toss. A number of tossing or attempts N can be done and the outcomes recorded. Recordings can be made so that H represents head and T tail. Let $F(p)$ represent the binomial probability function. By differentiating $F(p)$ and solving for p , it estimates the most likely value of p that maximizes the data. For a fair coin, heads and tails have equal (0.5) chances of occurrence. Therefore, to check if the coin is biased, one simply compares the p with 0.5. If they are equal, then the coin is unbiased and biased otherwise. Moreover, the degree of bias can be determined.

Applying this to DE can be explained as: suppose an expectation item is rated as High-DE or Low-DE. Take N as the total number of ratings for a particular item from users where H is considered High-DE and T Low-DE.

$F(p) = 1$ if High-DE and $F(p) = 0$ otherwise.

By taking the derivative of $F(p)$ and solving for p , the most probable parameter is achieved. If the estimated value is not 0.5, the bias towards Low-DE or High-DE can then be computed.

3.4.4 Maximum Likelihood Estimation

As the example illustrated, maximum likelihood estimation or MLE is used to estimate the parameters of a probability distribution function. Let X be a sample data set drawn from some population P . In order to draw conclusions about the population P , the probability distribution function (PDF) that describes P has to be estimated, (e.g. normal, binomial, gamma distributions) and the parameters of that PDF, e.g. its mean, variance, minimum, maximum, etc. A tentative model is normally proposed by simple graphical analysis of the data, some physical theory, and/or previous experience with similar data or other expert insights (Cohen, 1977). Before using MLE for statistical inference from a given data sample, the following preparatory steps are thus required:

- (I) Identify the model/probability distribution function (PDF) of P .
- (II) Estimate the value of the unknown parameter(s) i.e., provides initial parameter estimate(s).

When both the above are input to a statistical analysis package in order to apply MLE, the MLE estimation

- (A) Evaluates the quality of fit (of the sample data to the PDF) and
- (B) Accordingly estimates the parameter value(s) of the population.

In other words, given the sample data along with (I) and (II) above, MLE evaluates how closely the data fits the given PDF, and computes better estimates of the PDF parameter(s) of the population from which the data sample was drawn.

3.4.5 Example 2 Demonstrating DE evaluation from Inference

For a normal distribution, the probability distribution function (PDF) is:

$$f(x_1, \dots, x_n | \mu, \sigma^2) = \prod \frac{1}{\sigma \sqrt{2\pi}} [e^{-[x_i - \mu]^2 / 2\sigma^2}] \dots\dots\dots 3.3$$

where x_1, x_2, \dots, x_n are the given sample values, the average is represented by μ and σ is the standard deviation. Applying the natural logarithm, gives

$$\ln f = -\frac{1}{2} n \ln(2\pi) - n \ln \sigma - [\sum (x_i - \mu)^2 / 2\sigma^2] \dots\dots\dots 3.4$$

and differentiating with respect to μ and equating to 0, leads to:

$\partial(\ln f) / \partial \mu = \sum (x_i - \mu) / \sigma^2 = 0$. Solving for μ , the results are $\mu^* = \sum x_i / n$ and plugging in the sample values, the estimated population parameter is computed. For the standard deviation, we differentiate (1) with respect to σ and get $\sigma = \sqrt{\sum (x_i - \mu^*)^2 / n}$.

3.5 SIGMA ALGEBRAS AND MLE APPLICATION TO DE

Let X_1 be a knowledge object with associated metadata $\{x_{11}, x_{12}, x_{13}, \dots, x_{1n}\}$ where an x_i is for example its quality rating, usefulness, status, popularity, etc. It is meaningful to can view a collection of such sets X_1, X_2, \dots as a sigma algebra X if a map of the range onto the same type e.g. Boolean or a rating scale of 1 to 5 can be established. It is possible to have a single sigma-algebra for the whole DE system, or a σ -algebra for all the contributions stated by a specific individual, etc. This is a collection of sets, with $x_{j1}, x_{j2}, x_{j3}, \dots, x_{jn}$ being elements of set j . These measure values (x_{ji}) can be drawn from the metadata captured in the system (survey). Using a Maximum Likelihood Estimator on such a σ -algebra allows a system to infer the true quality (rating, status, popularity, etc.) of the associated items.

Selecting variables x_1, x_2, \dots, x_n appropriately is critical for accurate inference. To measure, for instance reward expectations of a group of items X , the program collects all the values from their metadata and forms a set. These would then be fed into the mathematical model and the MLE computed. If X comprises e.g. all items contributed by a particular person, then

we can infer the true expectancy of that person. This information can then be used to reorganize preferences and identify the most important values of employees.

A collection of data for investigation or σ -algebra could be expressed as a matrix of measurements \mathbf{X} so that:

$$\mathbf{X} = \begin{pmatrix} x_{11} & \cdots & x_{1p} \\ \vdots & \ddots & \vdots \\ x_{N1} & \cdots & x_{Np} \end{pmatrix} \text{ where } x_{ij} \text{ is the score on the } j^{\text{th}} \text{ measure value for the } i^{\text{th}} \text{ item. For}$$

example, on the x_1 entity, one could have x_{11} representing intrinsic rewards, x_{12} extrinsic values, and so on. If the time element is considered, a Markov Chain estimator (stochastic process) can be used, providing different measures on the expectation/knowledge items. However, this is not done in this work and is left for future work.

3.5.1 Advantages of MLE

1. As an approach to parameter estimation, it achieves a better approximation than other estimators do as the sample size grows (Cramer-Rao lower bound) (Cramer, 1946; Gorman, 1990).
2. For independent observations, the maximum likelihood estimator follows an asymptotic normal distribution (Cramer, 1946).
3. Because MLE results are single values (convergence points), they can be used with confidence bounds in hypothesis tests.
4. There is a lot of statistical software that provides algorithms for maximum likelihood estimation for common distributions.
5. By establishing convergence values when they occur, *threshold* points can be set and when possible used as *benchmarks*. If parameters are performance values MLE estimates of standard deviation can be used to set upper and lower bounds (for example, the number of contributions or the rating of items in a specified time can be expected to fall in a specified range).

3.5.2 Disadvantages of MLE

Maximum likelihood equations have to be specifically worked out for a given distribution and estimation problem and there is thus potential for errors. Starting values are very important and MLE can be sensitive to the choice of these, and omitting information (variables) can make the MLE very inconsistent. In addition, MLE can be heavily biased for small samples. In certain instances, even the optimality property may not apply. Nevertheless, the principle of maximum likelihood still holds. For the majority of cases, MLE is a simple and useful estimator.

Variables tend to be aggregated towards the most likely event. Sets of events therefore, contain multiple variables primed to maximize information and knowledge. The way these variables or elements interact defines a particular probability distribution. It is hence, anticipated that, there are different sets of probability distribution at any given time in the minds of people. Statistically speaking, an expectation is a conditional probability that defines an outcome of an event Y given the status of the present event X.

In order to determine or approximate the expected value for a given event, the PDF must be obtained and the maximum likelihood estimation evaluated. In a given environment however, behavior variables occur and interact sometimes in an unprecedented manner motivated by both environmental forces and individual differences (Magnusson & Endler, 1977). Maximizing all these variables can be problematic for MLE.

3.6 MATHEMATICAL REPRESENTATION OF DE VARIABLES

Simple indexing of DE variables can be a powerful way of treating behavior variables. By using company databases, interactive models with different variable combinations can be implemented. When necessary predetermined weights may be fixed as coefficients. Individual responses to selected outcomes can then be measured and indexed. Other indexes could be the selection of all outcomes by all the respondents. The refinement of the outcomes

of such different formulas would be a good basis of estimating behavior variables (Eiser & Van der Plight, 1979), such as DE. Dillard (1979) created the factor score index based on differentially weighting expectancy valence cross product to reflect their correspondence to the underlying factor structure. The current research recognizes these methodologies as essential but suggests further, the use of maximum likelihood to optimize DE.

Corporate memory should contain a pool of DE variables, continuously processed and inferences obtained to resonate with the changing needs of work behavior. Part of the reason for investigating DE in integrated workplaces is that it provides a basis for codification of DE variables. With the effective use of computer systems, data can be easily captured, retrieved and shared. In virtual environments where DE in the form of written contributions is captured in the system, it becomes easier to investigate DE because contributions in the form of data are recorded and therefore accessible anytime (April & Katoma, 2008).

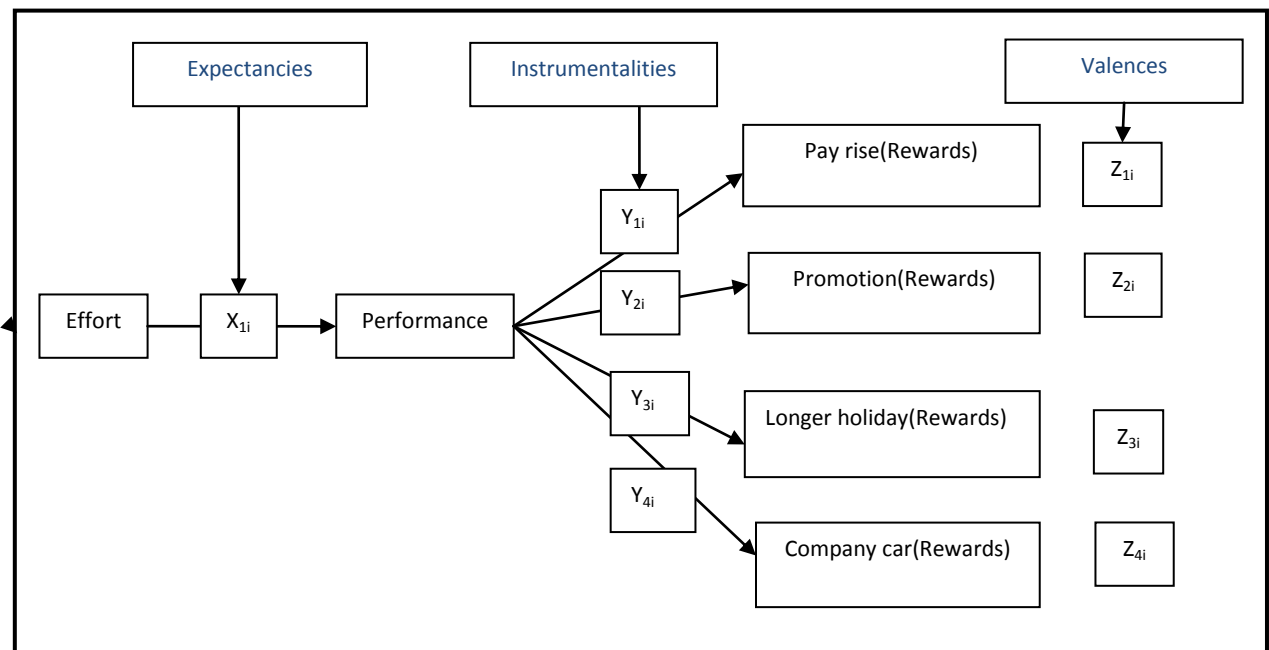


Figure 10: Illustration of a DE model by Mullins (1985)

The results of the calculations from the model would be adding the product of the valence (z_{ji}) x instrumentality (y_{ji}) calculations and multiplying the total by the expectancy value (x_{ji}): so that $\text{Effort} = [(z_{1i}) * (y_{1i}) + (z_{2i}) * (y_{2i}) + (z_{3i}) * (y_{3i}) + (z_{4i}) * (y_{4i})] * (x_i)$3.5

where the symbol * stands for multiplication. This method can be used to predict some criterion of job performance or a supervisor's assessment, or if available, more reliable measures such as figures for sales staff (Mullins, 1985).

3.7 DE AND CORPORATE MEMORY

Organizations that are determined to utilize the value of discretionary efforts must be ready to invest in processes and structures that promote its creation and re-focus on ways of sharing the knowledge that supports DE. System facilitation of learning should be an ongoing process with designed inference and process evaluation. DE is not a once off occurrence and therefore, its interpretation must be continuous. This requires accumulation and systematic integration of knowledge that creates it, whether in co-location or virtual environments. It also calls for evaluation and restructuring of social settings and corresponding technological changes.

One area where DE research seems to have stagnated is the process aspect. There is lack of codification of DE elements and, hence, a deficiency of data objects that can be used as storage facilities and DE representation in corporate memory. In order to preserve continuity, information should flow efficiently, implying that knowledge and information sources must be readily available. Insufficient information and knowledge flow can be blamed on poor DE qualities. What is needed is:

1. Make information elements accessible, a process that requires common terminology (Ontologies) for the domain in consideration.
2. Make knowledge elements and sources retrievable easily.
3. Information should be readily integrated with the existing knowledge body.
4. Information should be collected in a systematic way and integrated into the system.

5. Classification of data and information is necessary on a continuous basis to maintain consistency and guide system users accordingly. 6. Adoption of measurement instruments should also be done and scenarios provided to encourage practice or experimentation.

3.7.1 Data Classification

Data can be classified according to whether they describe a particular construct of DE or other. Expectancies for example would illustrate questions that relate to personal confidence. Other variables belong to the class of valences that are determined by the value employees place on the result of a performance outcome. Instrumentality would represent a class of the rewards following certain performance achievements, while self-affirmation would include variables describing self-efficacious constructs (April & Katoma,2009).

Classification of data can also occur in groups, for example, the number or combination of expectancy variables in a particular setting would define a group. For example VIE representing a class of variables with valence, instrumentality and expectancies, and VIEA illustrating a class all the variables in VIE but with self-affirmation.

3.7.2 Value Domain

Latent variables are synonymous to business objects. They possess attributes as secondary objects or manifest variables. Storage of discretionary variables, therefore, should consist of business data objects, purposed to capture these outer and measurable elements in order to induce measure of the inner latent variables. Churchill & Iacobucci (2001) noted that, one of the most critical elements in generating a content-valid instrument is conceptually defining the domain of the characteristics. Churchill & Iacobucci (2001) further posited that, if the included domain is decidedly different from the domain of the variable as conceived, the measure is said to lack content. The main objects in the data model in corporate memory

databases could be: 1. *source* (from which the discretionary variable emanated, typically a published work), 2. *snippet* (for instance, a posting or message about discretionary constructs). Each of these can be specialized depending on how the discretionary framework is realized in a particular system and environment (Berman & Katoma,2006). For example, an implementation of the framework may distinguish snippets posted as motivational and non-motivational (hygiene factors) variables or items related to valance and instrumentality.

Each of the three main types of object or latent variables for instance expectancy, instrumentality and valence can be associated with secondary objects that add value to that object. Secondary objects can be *ratings* given by respondents on the measurement instrument, *comments* made by readers, and system *metadata* collected such as the individual's perception or meaning and item class category (Berman & Katoma,2006). Secondary objects are useful in computing manifest variable measures. Recent research work at Shell International revealed that, in virtual professional networks several other variables are required. The most apparent drivers of performance and, hence, DE on that platform included: perceived leadership support (at organizational level), sense of community, and perceived usefulness of the system (Hendrix,2008).

Objects in the model are associated with each other via directional links. Any secondary object can relate to any source of effectors variable and can reference any other object in the model for instance. Every object has an individual concept associated with it and specific constraints and definitions for what that object can be used. The description of the operations on the variables and value ratings are consistent with the basic metadata registry model for data semantics as illustrated below:

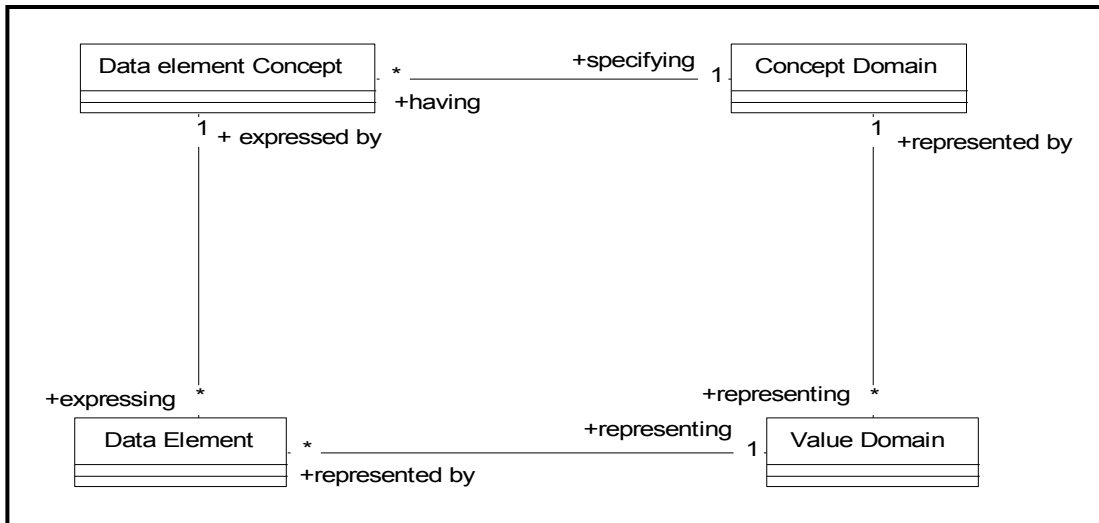


Figure 11: Overview of metadata registry (ISO 1995).

The diagram above has two levels, namely the conceptual level and the syntactical level. The conceptual level constitutes the “data element concept” and the “concept domain” classes while the syntactical level is composed of “data element” and the “value domain”. Data elements such as ratings in the data model are represented by manifest variables; $x_1, x_2, x_3, \dots, x_n$ and are defined by the data element concept. The data element concept describes the data type, (ISO, 1995) for example real numbers. The value domain assigns the data elements with permissible values for instance the value 1 as true and 0 as false or -1 and 1 for negative and positive valence respectively. Expectancy spans across a range of 0 and 1 is purely probabilistic. These values can also be Boolean or probability depending on the characteristics of their sources.

Table: Description of value domains

| Class descriptions | General Description |
|---|---|
| I. Conceptual Domain A set of value meanings is called a conceptual domain for example probability values. | Value domains are not necessarily related to any data element. Two value domains that share all the value meanings are conceptually equivalent and share the same conceptual domain. |
| II. Value Domain The set of designations for the classes of a partition determined by a characteristic is called a Value domain. A designation is known as a value, the associated class of the partition is described by a concept called the value meaning, and each value and the associated value meaning pair is known as a permissible value (ISO, 2004). | Two value domains that share the some value meanings are conceptually related. They share the same conceptual domain in a concept system containing each of the conceptual domains. |
| III. Data Element Data elements are the containers of data. The term data element is synonymous with the term variable or manifest, as it is understood in programming. Thus, the data type associated with a data element is important. | Many data elements may have the same value domain. For example, the expectance values would be either 1 for high and 0 for low. Expectancy can be expressed as a probability between 0 and 1. |
| IV. Data element concept Would define say real numbers. | A data element concept is related to a single conceptual domain, so all the data elements sharing the same data element concept share conceptually related representation. |

Table 2: Value Domain

An example: A population consisting of objects about the observed data can be given as x_1, x_2, \dots, x_n and the framework for understanding the data would be as illustrated in the diagram below:

| | |
|----------------|---|
| Population | The set of range of expectancy outcomes |
| Characteristic | Proportion of rewards (valence) variables |
| Partition | $\{x 0 \leq x < 1\}$ |
| Designation | Real numbers between 0 and 1 |

Table 3: Example 1 Demonstrating data scoring for DE

| | |
|----------------|--|
| Population | The set of motivational items |
| Characteristic | Proportion of expectancy variables (e.g hygiene factors) |

| | |
|-------------|--|
| Partition | {effort-performance expectancy,..., leading-visibility expectancy} |
| Designation | EP, IP, EL, LV, NP, IR, MR, NL, PO,TS |

Table 4: Example 2, demonstrating the actual data scoring on expectance variables

| | |
|------------------------|--|
| Conceptual domain name | Probabilities or knowledge item categories |
| Value Domain | All real numbers greater than 0 but less than 1 |
| Permissible values | <1, Maximum Positive Outcome> |
| | <0, Minimum Positive Outcome> |
| Data element | Set of items (variables) on the measurement instrument |
| Data element concept | Real values |

Table 5: Example 3, definitional process based on value domain

The main reasons for describing data in a metadata registry are:

- Each description of a data construct or instance is maintained in a uniform and prescribed manner.
- Identifiers, quality measures, responsible organizations and definitions are recorded for every data construct.
- For a system with in-depth coverage of concepts from different areas of study, a thorough definition of values and variables is necessary for consistency.

3.7.3 DE Variable Mobilization

For the concept, the current research refers to the DE element gathering processes as a variable mobilization system (VMS). The significance of the VMS is that within the professional network, systematic ways of assembling DE variables can be developed. It is imperative to recognize that, the current economy is highly integrated, complex and random and thus, cannot be simplified by an application of one field or specific level of detail but a combination of these.

One reason for the lack of evidence for convergent validity in measurement of beliefs and intentions is that, very few attempts have been made to develop standard scaling procedures for their dimensions. Researchers are constantly attempting to obtain effective scaling methods applicable to the less developed but very important and complicated social sciences.

This is how science advances its measurement instrument (Likert, 1932). A detailed account of this is given in the next chapter.

3.7.4 Modeling Behavior Variables

The uncertainty in the behavior variables is mostly the main concern for modeling. Random changes in behavior variables arise due to external influences, such as the environment while the others are internal such as attitudes. Further, most of the useful artifacts in human behavior cannot be directly measured. This leads to two aspects of concern, the measurable (manifest) and the hidden (latent) variables, which cannot be directly measured (Torgerson, 1958; Goldberger, 1972). The hidden variables can be associated with knowledge objects (expectations) which are hypothetical constructs. Traditional statistical methods have been successful at analyses focused on manifest variables but less on the latent variables. The relationship among the latent variables in the framework illustrates the structural part while the variables in the survey instrument explain the measurement part. In the current research, these comprise DE itself, valence, expectancy, instrumentality and self-affirmation. Because hidden variables cannot be directly determined, error variables should be considered and measured as well (Spearman, 1904). The relationship between the latent and the observed indicators are usually modeled as a common factor model $y_{ij} = \lambda_i \eta_j + \varepsilon_{ij}$ 3.6

The y_{ij} are the observed variables, $\lambda_i \eta_j$ are the latent variables and ε_{ij} the error terms.

With reference to the two learning theories, the cumulative method relates mostly to the measurement constructs while the paradigm reflects both the measurement and the structural parts. The only difference is that in the cumulative approach, expectation variables are integrated in the knowledge body by continuous elimination of errors, while in the paradigm method, it is the expectation from the networks that are instantaneously constructed and imposed on the information to create new knowledge. Clearly, knowledge in the cumulative theory is based on hoarding with altruistic motives. In this way, it is less disruptive; it is stable and relates mainly to the manifest variables. On the other hand, the paradigm approach

shows that knowledge is emergent and seems to embody the relationships between the manifest and latent and between the latent and the latent aspect of the modeling process.

This makes the paradigm aspect highly unpredictable because the schematic constructs determining the interpretation of information changes randomly and causes the entire conceptual framework to be reconstructed. The two learning processes are, however, always present in any social system, except that one may be more prominent and hence receive more focus. More importantly, interaction between the novice and the more knowledgeable enables growth in the knowledge process (Vygotsky, 1978).

In view of the knowledge content of the DE concept, this research proposes that attempts to determine or measure such an effort must firstly, be given an epistemic status. This is because DE is knowledge-based. Secondly, a comprehensive investigation of the structural aspect is required. This is because, much of the researches on DE tend to focus excessively on manifest variables, which do not convey the structural relationship between variables.

Modeling constructs have an inherent epistemic status in that they are not permanent structures and are, therefore, perceptual. This means that the paradigm approach to knowledge or expectation process would provide a better basis for explication of the DE construct at different levels and different workplace environments. Schemas can facilitate rapid knowledge accumulation, both in the linear and non-linear space (Messick, 1981).

Theories are measured both in unobservable and observable dimensions. It often paves the way for modeling while schemas provide room for extension.

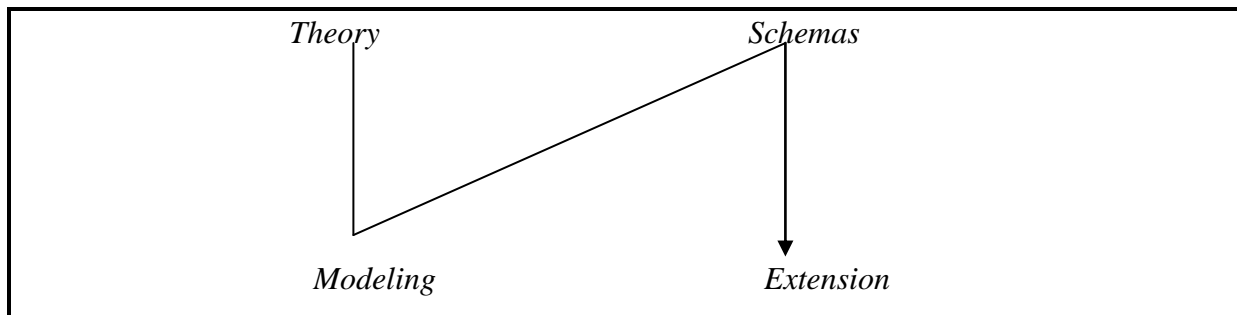


Figure 12: Model Extension through schemas

Drawing from these augments, the current research define the expectancies as unobservable variables (latent) emanating from some theoretical background. The indicator variables influencing the variability in the latent variables can be used to provide quantitative measurements of the latent variables.

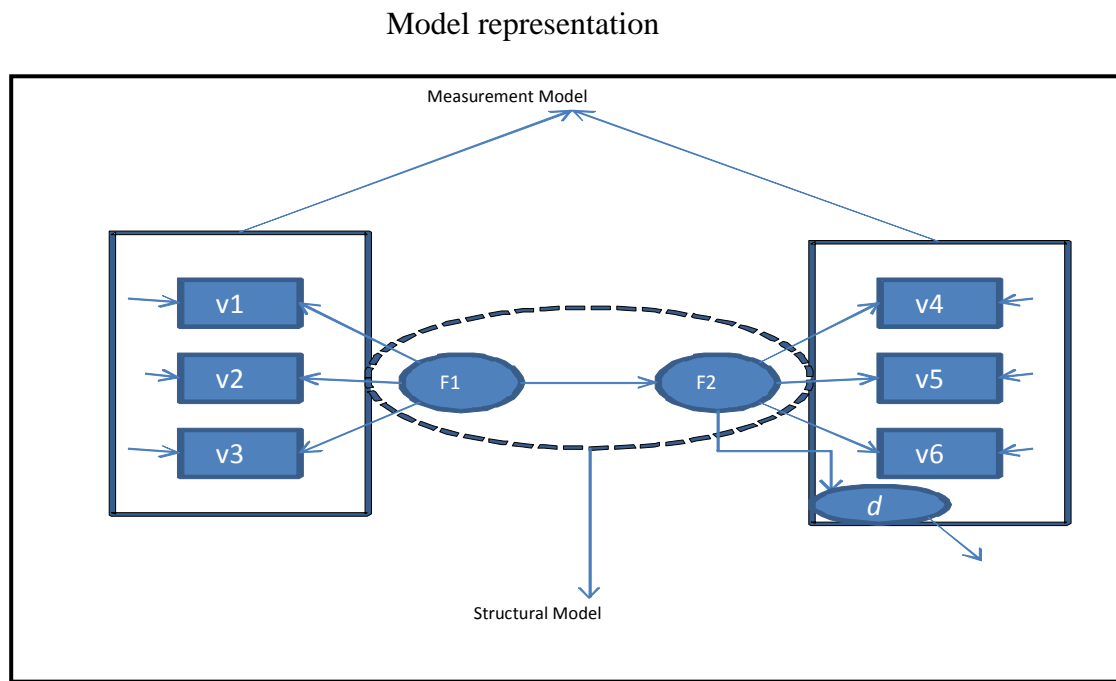


Figure 13: Measurement and latent representation of variables

A general structural equation model is demarcated into measurement and structural components.

In figure 13, the V_i ($i = 1, \dots, 6$) represent the observed variables reflected in the measurement instrument. F_i ($i = 1, 2$) represent the latent variables which when combined produces DE. The arrows pointing to the observed variables associate the variables to the approximation error in the variables. The symbol d represents the residue (error) variable in the unobserved variable. Discretionary Effort itself is latent and therefore, measured indirectly.

3.8 SUMMARY

This chapter illustrated the steps, which were involved in deriving the DE framework. It first restated the link between expectations and DE. The concept of expectation was given with a statistical viewpoint. The measurement instrument, which details items around which data gathering followed, was subsequently discussed. Expectancy variables were explained in detail, which ultimately led to the statement of the hypotheses. The necessary mathematical modeling notions were introduced, indicating the possibilities for framework expansion. A link of how the variables can be bound through mathematical constructs was elaborated. The second level of expectancy variables was provided and a conceptual model established. Definitions of domains were used for scaling data and simplifying the measurement processes.

CHAPTER 4: RESEARCH METHODOLOGY

4.0 INTRODUCTION

Chapter 4 discusses the methodology that was used in capturing and processing the data. It begins by giving an overview of the types of analyses that have been used by previous researchers. The analyses falls into two main categories, namely, inference and causal relationships. It then describes how the data were collected and the sampling methods used. The four different parts of the measurement instrument are explained and the process of instrument testing discussed. It then explains the major steps of the statistical processes that were employed. These include descriptive statistics, analysis of variance, correlations, factor analyses, regression analysis and modeling.

4.1 EXPECTANCY ANALYSIS METHODS

Expectancy analysis is predominantly applied in workplace behavioral research. Recently, however, investigations have included, academic environments, such as students' evaluation of their teachers (Chen & Hoshower, 2003). For example, Chen & Lu (2004) used the expectancy theory to assess key factors that motivate students' participation in a peer evaluation exercise.

Different conceptual and methodological approaches are applicable. One of the methods used has been, a within subject decision-making (Campbell, 2003; Chen & Lu, 2004) methodology that was initially designed by Stahl & Harrel (1981). This method uses fictitious scenarios to manipulate effort performance (E-P) expectancy level, performance-to-outcome (P-O) instrumentality, and valence. With this approach, participants would normally be required to respond to 20 or 30 fictitious scenarios. Within each subject, components of the expectancy

theory are thereafter, manipulated and regressed against the respondents reported levels of attractiveness and effort exerted across the fictitious scenarios. An average of the coefficient of determination R^2 statistic is then computed across subjects.

The second and third approaches, also adopted by this research are the most common, namely, the sample selected outcome index and factor score index. The sample selected outcome index allows respondents to rate the expectancy values for a list of outcomes (Fishbein & Ajzen, 1975). Expectancies like likelihood are measured to indicate, that a particular attempt to achieve something would result in a performance outcome. The researcher would then create an expectancy index often by simply summing the cross products of the underlying variable (likelihood and valence) ratings for all the anticipated outcomes (Mitchell, 1974).⁷

Fishbein & Ajzen (1975) described the sample selected outcome index as a method in which a sample of respondents select the outcomes they perceived to be important (Fishbein & Ajzen, 1975). The factor score index is created by differentially weighting expectancy-valence cross products to reflect their correspondence to the underlying factor structure (Dillard, 1979).

The number of the variables in the model also vary whereby some researchers only use two variables; expectancies and valence, while others include instrumentality to make it three (Miller & Grush, 1988). The cross product of the expectancy variables is then summed up to give the overall expectancy index (Mitchell, 1974). Although, the accuracy of both methods has been arguably tested, results in most cases have not been significantly contradictory. The current research recognizes that, with increasing complexities of work behavior due to increased activity in network platforms, the model can be tested more accurately with additional variables. Second, most experiments on DE are centered on the expectancy theory and are biased towards motivational values. Hence, the variance of DE that develops out of environmental factors (norms) and the object to self have been given little attention. Self-affirmation is not an explicitly motivational factor. This research therefore, incorporated all the three variables and included the fourth, namely, self-affirmation. Statistically, prediction

⁷ Many researchers support the inclusion of a third component, but others have opted for the two-component formula, have found it to be more effective, and accounts for more variability of the expectancy measure (Schwab, Oblan-Gottlieb, & Heneman, 1979).

becomes more accurate when variables are increased. The concept of professional networks and the cross sector sampling of the data required a more inclusive approach than a simplistic process. This is partly the reason why extended statistical analyses and inferences were applied in the current research.

4.2 DATA SAMPLING

The data consisted of respondents from various sectors. The mixed or cross sector responses entail a wider representation of employee views that is appropriate for inference and generalization of the underlying theory. This also improves predictive accuracy (Budhwar & Sparrow, 1997). Secondly, it was logical to obtain data from multiple sectors because the present research focuses on DE in professional networks, which incorporate employees in informal networks such as LinkedIn, which are open to everyone. Thirdly, there is little literature about differences in DE in sectors (April & Katoma, 2009). In addition, because of the professional network component and the sample data set that consisted mostly of managers and specialists, the knowledge worker concept was inevitable. The size of the entire data set of 1548 respondents was large enough for detailed analyses and inferences.

Particular emphasis was, directed at six sectors that provided substantial literature on DE. These included Education, Mining, Retail, ICT, Finance and Engineering. The selection of the six sectors was based on how independent these sectors were from each other. These sectors further provided a large number of respondents and could represent the rest of the sectors to a large degree. Because of the large sample data, sectors could be classified as clusters, according to virtual or co-location, which was later instrumental in multilevel modeling. Another interesting aspect of the combination of the sectors was that, two major categories emerged, companies either in the service industry (e.g Retail) or in product based activities (e.g Engineering). This was useful for a further DE sector analysis.

4.3 DATA COLLECTION

The data collection process used the questionnaire instrument that was initially developed by Professors Kurt April and Eon Smit of UCT and Stellenbosch Universities respectively. Data were collected mostly by using an online database system. Other collection methods included faxes, electronic mails and direct administration of questionnaires to respondents who were attending a leadership course at the Graduate School of Business. A data sample of about 1548 was obtained, consisting mainly of managers from different sectors as illustrated under descriptive statistics. The data were then coded onto an excel worksheet, cleaned and subsequently exported to SPSS and further to Lisrel for analysis and modeling.

All components of the instrument were quantitative in nature. This is because expectancy theories are econometrical based models and, therefore, require quantitative values. Secondly, measures of attitudes, beliefs including causality are naturally probabilistic (Fishbein & Ajzen, 1975; Schwartz, 2000) and are thus, interpreted quantitatively. The other advantage of a quantitative approach is that, it provides respondents with helpful memory cues to facilitate some sort of response. They also remind the respondent of ideas, which were forgotten (Edwards et al., 1997; Rea & Parker, 1992). This improves accuracy in the responses. It is also particularly important for complex topics such as DE which appears to be more of an intrinsic construct.

The problem with this method is that, the options provided may not reflect the full range of needs or opinions. Moreover, it may compel respondents to express attitudes even if they truly do not have them. Nonetheless, many researchers recommend closed-ended instruments as long as they contain easy to read items, whenever possible. For this reason closed-ended items are extremely popular in organizational surveys (Rea & Parker, 1992) which further indicates their reliability.

The total number of items was 80, sufficient for a quantitative analysis. Rea & Parker (1992) point out that a survey instrument length should be somewhere between 80 and 100 items.

4.3.1 The Four parts of the Measurement Instrument

In the first part of the questionnaire, respondents were required to state the value they placed on the expectancy item and what they thought the company value rating would be. This marked the expectancy part of the instrument into one group and two classes. The first class contained data of personal expectancy (II) values while the second class of the expectancy group, comprised the values of expectancy of the workplace (IW). A Likert scale of 1 to 5 point, bipolar rating (strongly disagree to strongly agree), was used on this part of the instrument. Fink (1995) noted that, organizational survey items usually provide five, seven or nine point options to have a bipolar scale with a mid-point, which provides a pivotal view of the data. A Likert scale, according to Wacławski (1996a) is a dominant method in measuring social and political attitudes.

In the second part (second group) of the measurement instrument, two classes were constructed. The first, measured the behavior of respondents and the second measured the meaningfulness of such constructs to the company. This last part of the instrument describes norms. Norms are functional because they regulate team performance and keep the team on track towards its objectives (Lau & Shami, 1992; Napier & Gershenfeld, 1993). Although, many organizations seem to have traditional cultures that resist changes (Moch & Seashore, 1981) in the different ways that business is done, research has shown evidence that social norms can indeed alter those perceptions and change behavior (Ajzen, 1971).

Items in this, second group were measured on a unipolar response option (degree of magnitude). Specific questions were provided, on how frequently respondents acknowledged they participated in acts that were discretionary. They also gave perceptions of whether their responses to Discretionary Efforts were valued by the company. The first reason for this was to investigate whether the variance in behavior (own belief or degree of self-conscious)⁸ was caused by expectancy. The second reason was, whether expectancy causes the variations in

⁸ Private self-consciousness refers to the degree to which individuals are aware of their own beliefs (Fenigstein, Scheier, & Bus, 1975).

the (self-monitoring)⁹ process of evaluating if what participants do is in fact meaningful and evaluated at the workplace (norms). Meaningful in this regard indicates how seriously these acts were considered by the companies.

4.4 QUESTIONNAIRE TESTING

Testing a questionnaire (mostly through a pilot study) is important and is done before the final administration of the questionnaire. The purpose of the 'pilot test' is *"...to refine the questionnaire so that respondents will have no problems in answering the questions"* (Saunders, Lewis & Thornhill, 2003:308). The testing phase further, allows the researcher to examine reliability and validity of the data. A pilot questionnaire is typically tested on a sample population as those included in the main study. They do not form part of the main study. The pilot study involved 180 respondents. A preliminary analysis revealed an internal consistency in the data with Cronbach's alpha of .86 on the expectancy part of the instrument. The minimum Cronbach alpha on the instrumentality side of the questionnaire was .60 and the highest was .85. This indicated acceptable consistency levels for further analyses.

4.5 STRATEGIES IN ANALYSIS

Survey interpretations often involve the effective use of advanced statistical techniques, for example multiple regression, item response analysis, analysis of variance, factor analysis, reliability analysis and structural equation modeling. Although not all these steps are required to make sense of data, a comprehensive systematic procedure provides compelling results from the data.

For studies aimed at investigating human behavior, different strategies of statistical analyses are necessary and can help explicate more information from the data. In the current research, some of the variables under consideration were difficult to measure directly and therefore,

⁹ Self-monitoring refers to the degree to which individuals are attuned to social norms and use them to guide their own behavior (Snyder & Monson, 1975).

modeling processes at different levels of abstraction were conducted. The steps in the data analyses involved, firstly, the basic and preliminary processes such as descriptive statistics, reliability analysis, analyses of variances (ANOVA). The other more advanced steps included correlation analysis, regressions analysis, multilevel analysis and structural equation modeling.

Analyses of variances (ANOVA) are the primary statistics used to investigate the differences in variable groups. The common sets of comparative analyses conducted using ANOVA are background variables such as time of tenure, education, gender and ethnicity to establish if basic trends along these existed in the data.

4.5.1 Data Preparation

A preliminary cleaning and formatting of the data was the first step in data preparation. This included renaming of variables such as limiting the number of characters to fit the specified nomenclature of SPSS. Data were thereafter, exported to SPSS for diagnostic and reliability analyses. All cases with or 50% or more of missing entries were discarded and the data re-ordered appropriately. Statistical processes with SPSS included descriptive, correlations, covariance and factor analyses. After the initial analyses of the data in SPSS, the data were exported to Lisrel (linear structural relationship) for structural equation modeling (SEM).

4.5.2 Descriptive Statistics

Descriptive statistics provide the necessary steps for scrutinizing the data and in many ways validate it for further analyses. This includes measures such as means, frequencies and standard deviations. The mean statistics assess the central measure of the distribution of the data and, therefore, provides insight into how well the measurement instrument addressed the issues of the research questions. For a scale of 5 points, the appropriate means should spread around 3.0. Additionally, the means would give a sense of bias if the measures are far close

to five or lower than one. Different means can be established depending on the way in which certain results are interpreted and considered meaningful to the research.

The standard deviation gives the variations of the data from the central value, which is the mean measure, and checks how big the range of variation is. It gives the confidence level of the data spread. Obtaining the standard deviation within acceptable limits would therefore, result in good estimations especially during advanced statistics such as correlations and regressions.

Frequencies provide a guide on the number of data falling in a certain category of response. For example, the researcher may want to know how many males and females were exclusively in co-location and virtual location. The frequencies are necessary in giving some insights of how the data were divided in the categories of interest. Frequencies, further give a description of the research regarding the influence that certain variables may pose due to their high occurrences, for example, checking the behavior variable, which was considered most important in this study.

4.5.3 Validation Stage

Validation (or testing) of the data is often done by applying the Cronbach alpha on the sets of items to check for internal consistency. This answers questions such as: do the answers to the questions follow a certain trend, together? A Cronbach alpha of .60 is acceptable but .70 and above are even better (Cronbach, 1951). In literature, the widely accepted social science cut off is .70 or higher. This is because, at .70, the standard error of measurement is over half (.55) of the standard deviation (Cronbach, 1951). The bigger the Cronbach alpha the more consistent the data is in predicting the underlying factor.

Since the measurement instrument was largely administered using an electronic system, problems of wrong answering such as picking two answers for the same question did not arise. Multi-collinearity did not occur because all the correlations were less than .90. Multi-

collinearity can be problematic in that it causes the p -value to be high even though the variable being tested is highly important (Mosulsky, 2002). This can result in rejecting the hypothesis wrongly.

Negatively worded questions were avoided in the entire questionnaire. Tolerance levels were within admissible ranges or greater than .40. Because the data set of over 1500 was reasonably large, all the missing values were discarded and a proportionally large set of 1548 responses was remained. According to the laws of large numbers or central limit theorem, when the data set is large enough, it is assumed to be normally distributed, and warrants many statistical assumptions and inferences (Heathcote, 1971; Feller, 1971; Ross, 1989).

4.5.4 Correlation Analysis

Correlation analysis is conducted in order to investigate whether there are relationships between the underlying variables. Correlation analyses usually follow the validation process. In this research, Pearson alpha (Pearson, 1913) correlation (r) was used. Pearson alpha correlation utilizes the linear relationships between variables (Nefzger & Drasgrow, 1957, Aldrich, 1995). Consequently, all the subsequent analyses, factor analyses, linear regression through to SEM are dependent on the Pearson correlation. Modeling tools such as Lisrel use correlations and covariance as basic unit of data (Carroll, 1961). In measuring correlation, the main aims are to check for discriminant and convergent validities. The former would determine the variables that would ultimately be discarded if they do not significantly correlate with the rest of the items. This implies that, in fact they could be measuring something else not common to the rest of the variables. The latter explains that certain items, if they converge, describe one factor or investigation similar to previous results. Usually, values of around $r = .40$ are significant especially if they are measured at .01 significance level. Measurements of less than .40 can be of concern while scores of .20 and less can be discarded. This is however, done with care in order to retain as much information as possible for further investigation. According to Pallant (2005), correlations between .10 and .29 are small, while those between .30 and .49 are medium and those correlations between .50 and 1.00 are large.

Removing poorly correlated items reduces the chances for errors in the other advanced analyses. Correlation does not imply causation (Rodgers & Nicewander, 1988) and therefore, the recorded results of correlation are preparatory values to be used in advanced analyses such as the regression.

After the preliminary analyses, the research focuses on details that are more inclined towards the conceptual model. Although these do not need to be highly complex, they provide more insight on the information and knowledge surrounding the framework under investigation. The goal is to use the theory, values, principles, and framework in order to understand what the data and the current thinking reflects about the DE construct. With the quantitative approach, more precision and lower level details can be explicated from the data. Besides, quantitative analysis provides a more data driven strategy for business cases that often lead to modeling (Cook & Campbell, 1979).

4.5.5 Factor Analysis

Factor analysis originated in psychometrics and is used in areas such as marketing, product management and operational research and other applied sciences where large quantities of data are considered (Cattell & Burdsal, 1975). It uses correlation techniques to group the number of questionnaire items into a few factors. A few but manageable numbers of factors or clusters can be highly useful to establish conceptual structures. When working with a pre-existing framework or model, the standard way is often to use the primary variables, factors or content areas provided in the model to classify and subsequently create averages or summary scores for each area (Rubenstein, 1986). In this way, the information contained in multiple constructs or individual items are condensed into more meaningful pockets of the main constructs that are conceptually and theoretically similar in content and meaning.

4.5.5.1 Strategies in using Factor Analysis

There are four basic reasons for using factor analysis, which are aimed at developing a causal solution to a set of data with multiple variables (Morrison, 1990). First, factor analysis is used to check for interdependence and pattern delineation in the data. When data are suspected to be related in a complex manner, this process can be used to untangle the linear relationships into their separate patterns. Each pattern would then be a factor delineating a distinct cluster of interrelated data. Second, factors help to concentrate and index the dispersed information in the original data without much loss of information (Cattell & Dickman, 1962). Thirdly, factor analysis can be employed to discover the conceptual structure of a domain from the underlying data. This is useful as a classifying tool for developing an empirical topology. Fourthly, factor analysis can be used to offer solutions by dividing the characteristics of the data into independent sources of variation (factors). The factor scores would then provide weights that can be employed for each characteristic or factor. In general, the variables that are highly loaded in a factor analysis are likely to be the causes of those, which are less loaded (Cattell, 1962).

In the present research, factor analyses were conducted on all the different parts of the instrument. When applied to the expectancy part of the instruments, the aim was to investigate the solution or set of factors that could be used to describe the expectancy variables. A second factor analysis was conducted on the expectancy variables focusing on the work side of the instrument. This provided the few factors, which were used in the regression analysis. The second factor analysis was conducted on the behavior variables. This was to investigate whether the data fitted the components of the behavior structure in the instrument. Further factor analysis involved the entire data set aimed at identifying if there were interesting clusters between the groups and among the classes. Commonalties that were below .40 were considered low and removed. From the factor analysis process, regression variables were identified and tested.

4.5.6 Regression Analysis

Regression analysis explains the possible causal relationships between independent and dependent variables (Altman, 1991). It seeks to determine to what extent the independent

variables affect the dependent variables. Unlike factor analysis that looks at hypothetical structures, regression models deal with measurable variables. Regression models exploit the linear (Pearson, 1938) relationship between variables to predict the dependent variable given a linear weighting of a set of independent variables. In other terms, it attempts to measure the cause of variability in the dependent variable with respect to independent variables. It achieves a good measure by minimizing the sum of the squared residual values. Some of the most critical statistics that determine the validity and significance of the relationships are the coefficient of determination (R^2), the F statistics and the t -statistics. The coefficient of determination accounts for the variances in the relationships of the model. The F statistics justify the validity of the model by recording a significant value. The t is used for testing if the independent variables are significant in the model. The t statistic is also used in testing hypotheses. For social sciences, a t of 1.96 is significant (Schumacker & Lomax, 2004). Mathematically, the regression model is represented by the following equation:

$$Y_i = \alpha + \sum \beta_j X_{ij} + \varepsilon_i \quad \dots\dots\dots 4.1$$

Dependable variables are represented by Y while independent variables by X . β is the predictor coefficient while α is the intercept. The subscript i refers to the i^{th} observation and the subscript j refers to the j^{th} predictor and ε_i is the difference between the i^{th} observation and the model; ε_i is also called the error term (Campbell & Machin, 1993).

Regression was conducted in order establish whether the variables namely expectancy, instrumentality, valence and self-affirmation (expectancy variables) are the cause of variability in discretionary behavior and hence, the cause of variability in DE. The analysis also indicates whether (expectancy variables) these variables are actually caused by discretionary behavior. It has to be noted, however that, regression analysis cannot assess the latent structure of DE. It does not also account for all the error measures that result in the indirect measurements of causal relationships or the context or layered analysis to reveal other detailed relationships in the entire data set. For that, multilevel analysis was conducted as explained in the next section. Structural equation modeling was utilized to provide further relationships in the causal relationships of the underlying DE framework.

4.6 MULTILEVEL ANALYSIS

Multilevel analysis determines the influence that certain unobserved factors impose on the data. This was applicable because the data consisted of layers and clusters of respondents in virtual and co-locations. One of the main aims, as also stated earlier, was to investigate empirically, which variables influence discretionary behavior. It is an indirect way of developing leadership in complex environments such as virtual networks (April & Katoma, 2009). In order to implement multilevel analysis, the data had to conform to certain hierarchical characteristics, namely, sectors, departments, and other clusters within professional networks.

The data were segmented into two categories namely virtual or co-location. The resultant structure was a three level construct. The levels were sectors, the highest in the hierarchy, then departments and last employees in clusters. Employees belong to clusters, which are departments, and departments are nested in sectors in that order. Variables such as gender and experience were then investigated, whether they had influence on the variation of the response (or dependent) Y_{ij} variables, which were discretionary attributes: expectancy, valence, instrumentality and self-affirmation. Additionally, a comparative analysis was conducted to indicate whether there could be differences in DE according to clusters and sectors.

$$Y_{ij} = \beta_o + \beta_1 \text{Gender}_{ij} + \beta_2 \text{Experience}_{ij} + \mu_{ij} + e_{ij} \dots\dots\dots 4.2$$

4.7 PRINCIPLE COMPONENT ANALYSIS

4.7.1 Confirmatory Factor Analysis

To obtain information about the latent variables (factors) a measure of their indirect effect on the observable variables was taken. The latent factors are usually a small set that were

deduced from studying the co- variation of the observed variables. This study undertook a confirmatory factor analysis (CFA). A CFA approach is mostly concerned with the measurement aspect of the model of figure 2. Mathematically, the observed variables are in general assumed and modeled as a linear combination of the underlying factors, so that the equations 4.3 and 4.4 can be constructed:

$$\begin{aligned} v_1 &= \lambda_{11}F_1 + \delta_1 \\ v_2 &= \lambda_{21}F_1 + \delta_2 \\ v_3 &= \lambda_{31}F_1 + \delta_3 \end{aligned} \dots\dots\dots 4.3$$

$$\begin{aligned} v_4 &= \lambda_{42}F_2 + \delta_5 \\ v_5 &= \lambda_{52}F_2 + \delta_6 \end{aligned}$$

$$\text{and } F_1 = F_2 + \alpha \dots\dots\dots 4.4$$

These represent a system of linear equations that must exist in both the conceptual model and the collaborative software. The factor equations can be translated into a linear regression 4.5 as noted below:

$$Y = \alpha + \beta X + \varepsilon \dots\dots\dots 4.5$$

so that Y is the observed dependent variable and X is an observed independent variable. ε is an error term indicating that X does not perfectly predict Y. β indicates that, a unit change in X results in an expected change in Y. Generally, the variables and factors X and Y can then be expressed in matrix form. Spearman (1904) devised the factor model by using the correlation coefficients to determine items that correlated or went together. These groups or sets of variables can then be summed to yield a score or measure that can be used to define or imply a particular construct.

4.7.2 Formal Specification:

Formalization of equation 1 requires defining mathematically the relationship between the observed variables and the factors in the sense that suppose

$$v = \psi F + \delta, \dots\dots\dots 4.6$$

then v is a $(qx1)$ vector of observed variables; F is a $(sx1)$ vector of common factors; ψ is a (qxs) matrix of factor loadings relating to observed v 's and

the latent F . δ is a $(qx1)$ vector of the residual or unique factors (Schumacker and Lomax, 2004). The covariant equation then can be expressed as

$$\Sigma = \psi\Phi\psi' + \Theta \dots\dots\dots 4.7$$

The co-variances among the common factors are contained in Φ , an (sxs) symmetric matrix. The variance and co-variance among the residual factors are contained in Θ .

4.7.3 Requirement Specifications:

This involves an extensive analysis prior to running the model. It covers areas such as, investigating whether all the expected variables are available. The process of SEM is just a detailed level of discussion of statistical analyses and therefore, its input must be data synthesized through the other previous processes including correlations and regression analyses. Variables emerging from the correlation and regression analyses form the basis of the inputs of SEM.

This would involve intensive extrapolation of the data. It requires a thorough check on whether the assumptions about the unobserved variables are sufficient and realistically framed. This research builds on the premise of performance and, therefore, part of the preparatory work involves organizing the data in a manner that the necessary elements of performance which relate to the discretionary framework are included. Validation of the data at every stage is vital to ensure that the derived framework is consistent with the commended statistical techniques. Here again, extensive use of mathematical and statistical techniques and reliable evidence on related theory (work) is required.

4.7.4 Model Identification:

When all the necessary validation processes are completed successfully, model identification begins. Model identification is a process that attempts to determine the number of free parameters that can be approximated in the model. This is done in order to ensure that the information in the sample variance and co-variance matrix S provides unique solutions or estimations of the parameter of the model. For example, equations 4.4 and 4.5 imply that the variance and co-variances of the observed variables and the parameters ψ , Φ and Θ are related according to the equation $\Sigma = \psi\Phi\psi' + \Theta$ (Schumacker & Lomax, 2004). Unless restrictions are imposed on the parameters in ψ , Φ and Θ , should there be one set of parameters that satisfies 4.8, there will be an infinite number of such sets. The number of distinct values in the matrix S is determined by $p(p+1)/2$, where p is the number of observed variables. A saturated model (all paths) with p variables has $p(p+3)/2$ free parameters. For example, a matrix S with three observed variables will have 6 distinct values $3(3+1)/2 = 6$ and $3(3+3)/2 = 9$ free parameters to be estimated (Joreskog, 1973). Therefore, the number of free parameters estimated in any theoretical implied model must be less than or equal to the number of distinct values in the S matrix. Another caution when specifying a model is that, the sample data must be large enough. A sample size ($n=10$) with variable ($p = 20$) would not be informative enough to estimate the values in a saturated model. These do not absolutely guarantee model identification. A further check is necessary and for this research, avoiding identification problems was done through variable fixing. By this procedure, either one indicator for each latent variable must have a factor loading fixed to 1. This is done in order to impose constraints and to offset the indeterminacy between the variance of the latent variable and the loadings of the observed variables on that latent variable.

Since this research relies on a confirmatory factor analysis criteria, much of the identification problems were avoided. This is enforced by the nature and detail of the requirement specification as stipulated in step 1. The data were tested for plausibility of the model and because some of the procedures for testing discretionary effort were partly met in the proceeding analysis, a parsimonious approach was explored. The goodness of fit (*GIF*) and

other measurement of fit indices such as the *CFI* and *NNFI* were used to confirm the validity of the proposed framework. In principle, a model has to be hypothesized and then tested with the sample data. Because of the imposition of the model on the data, the researcher would rationally enquire and establish enough evidence based on some statistical assumptions and facts (Schumacker & Lomax, 2004).

4.7.5 Step 3: Estimation:

Here parameter estimation is done by normally comparing the actual co-variance matrices representing the relationships between variables and the estimated co-variance matrices of the best fitting model. This can be obtained through numerical maximization of fit criteria such as maximum likelihood estimation.

4.7.6 Step 4: Assessment of fit.

At this point, results are carefully compared with the estimated matrices representing the relationships between variables in the model to the actual matrices. This does not pose a problem as some statistical tests and fit indices have been developed and improved over time. Going through this process is therefore, relatively easy as it only requires checking how well the proposed model fits the deriving theory. The only caution here is to ensure that even if the model fits, it must be uniquely identified.

4.7.7 Step 5: Model Modification:

Depending on the outcome of step 4, the model may need to be modified to maximize the fit henceforth; estimating the most probable relationships between variables. This again requires revalidation before proceeding to the next step, which is interpretation of the results.

4.7.8 Step 6: Interpretation:

Interpretation involves claims about the constructs derived from the best fitting model. A better model is one that helps to classify and interpret the data.

The goal was to ultimately measure the conceptual model and evaluate how this measured the extent to which the model fitted the data. Normally, models are hypothesized and SEM uses these same models to fit them to the available data and therefore, it determines the extent to which the hypothesized model fits or is supported by the data. The researcher believes that the sets of variables define the constructs that are hypothesized to be related in a certain way. If the sample data supports the model, then more complicated theoretical models can be hypothesized.

Many different SEM applications were considered including regression models, factor models and multilevel models. This was done in order to comprehensively explicate enough information from the data so that meaningful conclusions and recommendations can be made. Results were reported according to cases, for clarity. The VIE and the VIEA were analyzed and the model measurement reported.

4.7.9 Advantages of SEM

Researchers are becoming aware of the need for more multiple observed variables to understand complex relations between factors more meaningfully. However, ordinary statistical methods can only deal with a limited number of variables at a time. The use of a limited number of variables to model a complex phenomenon is difficult and hinders the measurements of sophisticated theories (Schumacker & Lomax, 2004). For example, the use of bivariate correlation analysis cannot be used to understand a complex theoretical structure (Pearson, 1938).

Measurement errors are easily recognized in statistical analysis, as reliability and validity measures are usually reported in most research designs. In fact, in some modeling processes, it is preferred to use co-variance matrices to correlation matrices. Yet in most of the traditional statistical tools, data are treated separately from measurement errors (Joreskog, 1973). SEM, on the other hand considers measurement errors as part of the analysis process.

The ability of SEM to analyze data at different levels such as students in schools, and schools in a particular region, using the multilevel modeling is a great improvement in explicating detailed information from the data. This provides the researcher with more capabilities to address sophisticated theories. The process of measuring the DE framework at this advanced level provides insights into the underlying dynamics of the variables.

Lastly, SEM applications are becoming more user-friendly and therefore, allow researchers to perform sophisticated analyses with less difficulty.

However, although the focus on SEM gives more understanding of the relationships among the underlying variables and the framework, it is easy to overlook certain simple results that are evident from simple analyses such as descriptive statistics. This indicates that, the process of analyzing data must be comprehensive and include most if not all the necessary stages.

4.7.10 Disadvantages of SEM

SEM needs to be carefully implemented to avoid reification errors. Reification occurs when results of the models are overstated because of not considering other important statistical steps to check if the models will be well represented. This includes, preparing the data adequately to avoid over loading of coefficients of observed and unobserved variables.

4.8 SUMMARY

Chapter 4 has discussed the procedures adopted in processing the data. It examined the methods that other researchers used to describe and propagate expectancy and hence, the DE framework. The common methods are the creation of indices and simply calculating DE by way of summing the value products of the variables. This method applies in this research; in addition, other methodologies were applicable. These included, the analysis of variances, investigating and establishing correlation and causal relationships between the underlying variables. Advanced methods such as regression, factor analyses, SEM and multi-level modeling were used in order to further explicate the data and create more knowledge and understanding of the underlying variables and causal structures. Knowledge of how variables, latent and indicator interact was necessary to understand more broadly the factors that influence and encourage DE in integrated and dynamic environments. The results are presented in the next chapter (5).

CHAPTER 5: RESULTS AND ANALYSES

5.0 INTRODUCTION

Chapter 5 gives an account of the results obtained from the primary research, in stages of increasing complexity of detail. It follows the structure and tabulation of the methodology, discussed in chapter 4. The overview and feel of the dataset appears in the biographical data with the corresponding descriptive analysis. An analysis of the ANOVA follows. Correlation and causal investigation using regression methods are presented in tabular formats and analyze in the context of DE. The last part discusses the SEM process which was used to investigate variable relationships in a more detailed manner especially since SEM takes care of statistical errors in the analysis as these are not identified by the other methods.

5.1 DESCRIPTIVE STATISTICS

In descriptive analysis, the following, (table 6) groups were designed to reduce the set of sectors to a manageable sample. The researcher ensured at the same time, that every sector was represented. The first column in table 6 states the sector and the second section indicates the group of industries involved.

| Sector | Industry |
|--------|----------|
|--------|----------|

| | |
|---------------|---|
| Education | Academic, Education, Librarian, |
| Engineering | Construction, Engineering, Plastics, Clothing |
| Entertainment | Entertainment, Gambling, Music, outdoor events, Museums, Sports, Hotel, hospitality |
| Environment | Farming, agriculture, Sanitation, Water Works, Horticulture, Landscaping |
| Financial | Asset Management, Banking, Finance, Insurance, Financial Services, International Development Bank |
| FMCG | FMCG, Food, Restaurant, Brewing, Fisheries |
| Govt | Government, Military |
| ICT | ICT, Corporate Internet, Info Tech, Information Technology, Internet media, IT, Telecommunication, Wireless |
| Manufacturing | Paper |
| Media | Advertising, Film, Printing Services, Photography, graphic design, Marketing, Media |
| Medical | Healthcare, Medical, Social Work, Research, beauty therapy, biotechnology |
| Mining | Mining, Minerals, Mineral processing, Metallurgical, Mining and smelting |
| NGO | Church, NGO |
| Petroleum | Petroleum |
| Retail | Retail, commercial property, tourism |
| Support | Legal, Call Centre, Services, Recruitment, Consulting |
| Transport | Motor, Motor Retail, Export, Import, Aviation |

Table 6: Sector groupings

Demographics and Descriptive Statistics:

The sample data consisted of 1425 participants with 918 men (64.4%) and 507 women (35.6%). In the sample, 468 participants were younger than 30 years (32.8%), 392 were between 31-35 years old (27.5%), 213 were between 36-40 years old (14.9%), and 131 were between 41-45 years old. The number of participants who were between 46-50 years old and over 50 years old was 86 (6.0%) and 135 (9.5%) respectively.

From the entire sample data, the percentages of position or rank were: 52% of participants were managers while 23% were specialists and 15% were directors. The percentages of the number of CEOs and section heads were both 5%.

The sectors were grouped according to the following criteria: Communications, Education, Engineering, Financial, FMCG, Government, Internet/Information Technology, Medical, Mining, NGO, Petroleum, Retail, Services, Transport, other, and not specified. Of the entire data set, 240 participants work in Finance (16.8%) and 136 work in Engineering (9.5%). The tables appear in Appendix B.

Table 7 illustrates the descriptive statistics of the first part of questionnaire item variables, also categorized as class A. These items measured the descriptive statistics, means and standard deviations at the personal level.

| Individual Level | N | Mean | S.D |
|------------------|------|-------|---------|
| EPpersonal | 1425 | 4.503 | 0.61594 |
| IPpersonal | 1425 | 4.215 | 0.72199 |
| ELpersonal | 1425 | 4.202 | 0.77341 |
| LVpersonal | 1425 | 3.866 | 0.85023 |
| NPpersonal | 1425 | 3.824 | 0.84584 |
| MRpersonal | 1425 | 3.778 | 0.8548 |
| POpersonal | 1425 | 4.321 | 0.75067 |
| TSpersonal | 1425 | 4.100 | 0.87082 |
| IRpersonal | 1425 | 3.791 | 0.96194 |
| NLpersonal | 1425 | 4.284 | 0.72644 |

Table 7: Personal level descriptive statistics

From table 7, the highest mean was 4.50 and the lowest was 3.77. This indicates that the ratings were generally high on this measure. The highest standard deviation was 0.96 while the lowest was 0.62.

Table 8 below reports the descriptive statistics of the expectancy variables or responses at the work level.

| Organizational Level | N | Mean | S.D |
|----------------------|------|-------|---------|
| EPwork | 1425 | 4.259 | 0.7974 |
| IPwork | 1425 | 3.947 | 0.86158 |
| ELwork | 1425 | 3.847 | 0.87756 |
| LVwork | 1425 | 3.795 | 0.95406 |
| NPwork | 1425 | 3.923 | 0.91856 |
| IRwork | 1425 | 3.549 | 0.97037 |
| MRwork | 1425 | 3.521 | 0.93751 |
| NLwork | 1425 | 3.822 | 0.90827 |
| POwork | 1425 | 4.067 | 0.85687 |
| TSwork | 1425 | 4.063 | 0.92159 |

Table 8: Work level descriptive Statistics

The highest mean at the work level was 4.26 while the lowest was 3.52. Although these were all higher than the midpoint (3.0), they were both lower than the values at the personal level in table 8. On a Likert scale of five, it is recommended that scores cluster around the mean value of three. Having values that are greater than 3.10 and less than 2.10 for most cases is an indication of a biased measure (Church and Waclawski, 1998). The standard deviation at the work level showed the highest at 0.97 and lowest at 0.80.

The difference between the standard deviation of 0.17 at the work level to 0.34 at the personal level revealed that, there was high variance (volatility) in responses at the personal level compared to the work level. It also reflects more bias in the data at the personal level compared to the data at the work level.

5.2 INSTRUMENT TESTING AND VALIDATION

The measurement instrument had two groups and four classes with each group having two classes. Group 1 consisted of 10 expectancy items (expectancy questionnaire). These were measured at the individual level as class one (1) and organization level as class two (2). Cronbach's alpha were .78 at the individual level (class one) and .84 at the organizational

level (class two). Although both Cronbach's alphas were high and significant, class two was better of the two. This means that, the responses at the work level were more consistent compared to those at the personal level.

Group 2 of the instrument measured individual discretionary behavior, (behavior questionnaire; class three) and, on the other side measured whether the organization considered such behaviors important or not (organizational norms questionnaire; class four). The item groups for class three and four with their Cronbach's alphas and means are listed as follows: EE scored a Cronbach's of .65 (*mean 4.0*) and .82 (*mean 3.14*) Cronbach's at individual (class 3) and organizational (class 4) levels respectively. PE had a score of .61 (*mean 4.02*) at the personal level (class 3) and .83 (*mean 3.33*) at the organizational (class 4) level while WG recorded .74 (*mean 3.74*) and .85 (*mean 3.05*) at class 3 and class four levels respectively. EO had Cronbach's alpha of .60 (*mean 3.79*) at the individual (class 3) level and .82 (*mean 3.03*) at the organizational (class 4) level, while PC recorded .69 (*mean 3.68*) and .78 (*mean 3.13*) at personal (class 3) and organizational (class 4) levels respectively. The last component EA scored .63 (*mean 3.40*) Cronbach's alpha at the personal (class 3) level and .80 (*mean 2.89*) at the organizational (class 4) level.

The Cronbach's alphas were all higher at the organizational level (classes 2 and 4) as compared to the individual level (classes 1 and 3). Cronbach's alpha equal to or greater than .70 are significantly high and good but other researchers propose that a .60 (Cronbach, 1951) and above can be considered as good measures as well. The lowest for the behavior variables (class 3) was .60 while that of the measure of the importance of such behavior (class 4) was .78. This revealed that, there was more internal consistency on the organizational measures (norms) than the personal behavior side. The standard deviations showed high volatility on the personal side, class 1 with a difference of .35 and that of .17 for class 2 in the first group. This revealed that there was more consistency in responses in class 2 of the instrument as compared to class 1.

From the validity tests, it was evident that the measurement instruments were appropriate for research. Extreme low values suggest that some items in the instrument could be measuring something else, not intended, but they could also mean that, respondents may not have understood some of the questions. However, the general scores showed that the effects of low Cronbach's values would not adversely affect the research, as they were not extreme (e.g <.50).

5.3 PRELIMINARY ANALYSIS

In the preliminary analysis, an investigation of common indexing method was adopted to extract initial results. The method relied upon item parceling (averaging of indicator variables) of items and common expectancy calculations. The use of item parceling has been advocated in many studies as they are said to be more reliable than individual items (Cattell & Burdsal, 1975; Kishton & Widaman, 1994). The other advantage cited is that, item parcels have distributions that are more continuous and normally distributed than those of individual items and, therefore, conform more closely to normal theory-based estimations such as maximum likelihood (ML) (Bridgeman & Roke, 1993). In particular, in areas of organizational research, Bagozzi & Edwards (1998); Bagozzi & Heatherton (1994) noted that the use of parceling (partial disaggregation models) results in fewer model parameters because factor loadings and measurement error variances need only be estimated for each parcel rather than for each item. Parceling results lead to reduction of variables, which keeps the models' degrees of freedom reasonable, and hence a better-fit with simpler interpretations (Gottfried & Fleming, 1994).

To begin with, the items of the classes were parceled and a general expectancy model was used to test the DE construct. For clarity, the following logic was used to present the formulas:

Let AV_II denote the average value of EPpersonal, IPpersonal, ELpersonal, LVpersonal, NPpersonal, MRpersonal, POpersonal, TSpersonal, IRpersonal, and NLpersonal, i.e.,

$$AV_II = (EP_{personal} + IP_{personal} + EL_{personal} + LV_{personal} + NP_{personal} + MR_{personal} + PO_{personal} + TS_{personal} + IR_{personal} + NL_{personal})/10$$

Let AV_IW denote the average value of EPwork, IPwork, ELwork, LVwork, NPwork, IRwork, MRwork, NLwork, POWork, and TSwork, i.e.,

$$AV_IW = (EP_{work} + IP_{work} + EL_{work} + LV_{work} + NP_{work} + IR_{work} + MR_{work} + NL_{work} + PO_{work} + TS_{work})/10$$

Descriptive statistics for AV_II and AV_IW were consistent with the earlier results. The mean of AV_II is 4.09 with std. deviation of 0.45 and the mean of AV_IW is 3.88 with std. deviation of 0.57. The mean of AV_II is larger than that of AV_IW while the std. deviation was more on AV_IW compared to AV_II.

The parceled items for the behavior and norm classes were formulated as follows:

$$AV_EE_{personal} = 1/5(\sum_{i=1}^5 EEi_{personal}) \quad AV_EE_{work} = 1/5(\sum_{i=1}^5 EEi_{work})$$

$$AV_PE_{personal} = 1/5(\sum_{i=1}^5 PEi_{personal}) \quad AV_PE_{work} = 1/5(\sum_{i=1}^5 PEi_{work})$$

$$AV_WG_{personal} = 1/5(\sum_{i=1}^5 WGi_{personal}) \quad AV_WG_{work} = 1/5(\sum_{i=1}^5 WGi_{work})$$

$$AV_EO_{personal} = 1/5(\sum_{i=1}^5 EOi_{personal}) \quad AV_EO_{work} = 1/5(\sum_{i=1}^5 EOi_{work})$$

$$AV_PC_{personal} = 1/5(\sum_{i=1}^5 PCi_{personal}) \quad AV_PC_{work} = 1/5(\sum_{i=1}^5 PCi_{work})$$

$$AV_EA_{personal} = 1/5(\sum_{i=1}^5 EAi_{personal}) \quad AV_EA_{work} = 1/5(\sum_{i=1}^5 EAi_{work})$$

I = Importance Value of the Expectancy Construct to the Individual (II)

O = Probability of Desired Outcome = Effort Expectancy Constructs (EE) + Performance Expectancy Constructs (PE) (Gorelick, & April, 2004, p16).

V = Valence = Workplace Orientation for Desired Outcome / Emotional Orientation for Desired Outcome = (Importance Value of the Expectancy Construct to the Workplace (IW) + Achievement of Workplace Goals (WG)) / Emotional Orientation for Desired Outcome (EO) (Gorelick & April, 2004, p16).

A = Affirmation of Self through Expectancy (Self Esteem)

= Positive Comparison (PC) of Expectancy with Peers + Expectancy is Meaningful and is evaluated by Workplace (ME) + Self is seen to have Capacity for Efficacious Action (EA)

.....5.1

(Gorelick & April, 2004).

Although, different interactive DE (VIE or VIEA) models are obtainable, such as model 5.1, there is little difference in what they aim to achieve. This is because the multiplicative factors or coefficients do not affect the model mathematically in fundamental ways. The coefficients only highlight the factor loading or magnitude of each component. However, the importance of this procedure is that it plays a significant role in statistical inference. Firstly, it is possible to investigate partial DEs as illustrated in the equations below. This is helpful in comparing the importance of expectancy variables and exploring thresholds in DE. Secondly, it illustrates the interactive aspect of DE variables, which have been supported by many researchers (Shah & Higgins, 1997).

$DE_{EP} = (0.1 * EP_{personal}) * (0.2 * (AV_{EEwork} + AV_{PEwork}))$

$* ((AV_{IWwork} + AV_{WGwork}) / AV_{EOwork}) * (AV_{PCwork} + AV_{EAwork})$5.2

$DE_{IP} = (0.1 * IP_{personal}) * (0.2 * (AV_{EEwork} + AV_{PEwork}))$

$* ((AV_{IWwork} + AV_{WGwork}) / AV_{EOwork}) * (AV_{PCwork} + AV_{EAwork})$5.3

From the VIEA formula and the survey data, results revealed interesting statistical constructs. The results from the DE revealed that a close to normal distribution emerged as shown in figure 14. The importance of this result is that, the PDF for normal distribution can then be

used to calculate the maximum likelihood estimation (MLE) of DE or performance niches. This works well, especially when initial parameters are provided. This means that, better and reliable results can be realized through repeated experimentation.

5.4 MLE REQUIREMENTS AND APPLICATION

As illustrated in the previous example in chapter 3, maximum likelihood estimation (MLE) is used to estimate the parameters of a probability distribution function. For example, Let X be a sample data set drawn from some population P . In order to draw conclusions about population P , the probability distribution function (PDF) that describes P has to be estimated (e.g. normal, binomial, gamma distributions) and the parameters of that PDF, e.g. its mean, variance, minimum, maximum, etc. A tentative model is normally proposed by simple graphical analysis of the data, some physical theory, and/or previous experience with similar data or other expert insights (Cook & Duckworth, 2003). Before using MLE for statistical inference from a given data sample, the following preparatory steps are required:

- (A) Identify the model/probability distribution function (PDF) of P
- (B) Estimate the value of the unknown parameter(s) i.e., provide initial parameter estimate(s) for them.

When both the above are input to a statistical analysis package in order to apply MLE, the MLE estimation then:

- (C) Evaluates the quality of fit (of the sample data to the PDF) and
- (D) Estimates parameter value(s) of the population.

In other words, given the sample data along with (I) and (II) above, MLE evaluates how closely the data fits the given PDF, and computes better estimates of the PDF parameter(s) of the population from which the data sample was drawn.

For a normal distribution, the probability distribution function (PDF) is:

$$f(x_1, \dots, x_n | \mu, \sigma^2) = \prod \frac{1}{\sigma\sqrt{2\pi}} [e^{-[x_i - \mu]^2 / 2\sigma^2}] \dots\dots\dots 5.3.$$

where x_1, x_2, \dots, x_n are the given sample values, the average is represented by μ and σ is the standard deviation. Applying the natural logarithm, gives

$$\ln f = -\frac{1}{2} n \ln(2\pi) - n \ln \sigma - [\sum (x_i - \mu)^2 / 2\sigma^2] \dots\dots\dots 5.3.$$

and differentiating with respect to μ and equating to 0, leads to:

$\partial(\ln f) / \partial \mu = \sum (x_i - \mu) / \sigma^2 = 0$. Solving for μ , the results are $\hat{\mu} = \sum x_i / n$ and plugging in the sample values, the estimated population parameter is computed.

For the standard deviation, we differentiate (1) with respect to σ and get

$$\sigma = \sqrt{\sum (x_i - \hat{\mu})^2 / n} .$$

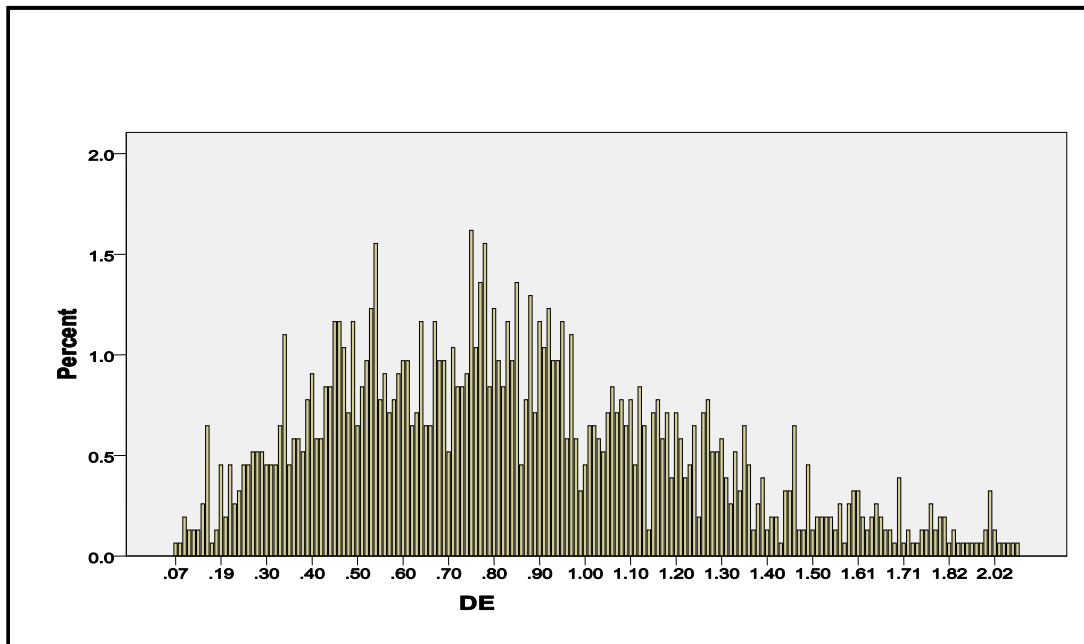


Figure 14: Graphical distribution of DE to demonstrate the close to normal PDF

Computing these parameters over a span of time or continuously would provide insight into possible DE bounds (or benchmarks) so that specific DE levels can then be targeted. The

PDF for DE for graph 14 above; the mean value was 0.844 at 95% confidence interval (0.837, 0.851, and $p < .001$).

By using the simple, initial method above, a comparison test was, in addition done to measure how the variables valences, instrumentality, expectancy and self-affirmation related with DE. The F test and sig. values were however, significant as indicated in table 9 below.

| | | ANOVA | | | | |
|-------------------|----------------|----------------|------|-------------|--------|------|
| DE variables | | Sum of Squares | Df | Mean Square | F | Sig. |
| Expectancy | Between Groups | 109.421 | 185 | .591 | 3.802 | .000 |
| | Within Groups | 211.389 | 1359 | .156 | | |
| | Total | 320.810 | 1544 | | | |
| Instrumentality | Between Groups | 3327.427 | 183 | 18.183 | 25.662 | .000 |
| | Within Groups | 943.779 | 1332 | .709 | | |
| | Total | 4271.206 | 1515 | | | |
| Valence | Between Groups | 138.571 | 185 | .749 | 1.228 | .027 |
| | Within Groups | 829.172 | 1359 | .610 | | |
| | Total | 967.743 | 1544 | | | |
| AffirmationOfSelf | Between Groups | 2891.780 | 184 | 15.716 | 12.728 | .000 |
| | Within Groups | 1659.585 | 1344 | 1.235 | | |
| | Total | 4551.365 | 1528 | | | |

Table 9: Initial Anova, detailing the differences in the DE variables

A further analysis of variances between the six notable sectors namely, Retail, Education, Engineering, Finance, ICT and Mining was conducted. These companies were selected because they were the only ones where DE literature was available (April & Katoma, 2009). In their findings, April & Katoma (2009) indicated that DE was different in the six sectors with Retail as highest (.888), then Mining (.887), Education (.870), Finance (.838), ICT (0.822) and Engineering (.759) in that order. This result is also interpreted as a macro level analysis output. A further investigation in this research revealed that although there were differences in DE the most significant was between the first five and engineering as tabulated in table 10 below. These were measured at 95% confidence level.

| | Retail | Mining | Education | Finance | ICT | Engineering |
|-------------|---------------------|--------------------|-------------------|---------------------|-------------------|--------------------|
| Retail | | t=0.01 p=0.99 | t=0.20 p=0.84 | t = 0.82 p= 0.41 | t=0.53 p=0.60 | t= 2.27 p=0.024 |
| Mining | t= 0.01 p= 0.99 | | t=0.19 p=0.85 | t=0.01 p=0.99 | t=0.19 p= 0.85 | t=2.21 p=0.03 |
| Education | t= 0.20 p= 0.84 | t=0.19 p=0.85 | | t= 0.67 p=0.51 | t =0.39 p=0.69 | t=2.28 p=0.02 |
| Finance | t = 0.82 p= 0.41 | t= 0.79 p= 0.43 | t= 0.67 p=0.51 | | t=0.01 p=0.99 | t=2.13 p=0.03 |
| ICT | t=0.53 p=0.60 | t=0.19 p= 0.85 | t =0.39 p=0.69 | t=0.01 p=0.99 | | t=1.16 p=0.25 |
| Engineering | t= 2.27 p=0.024 | t=2.21 p=0.03 | t=2.28 p=0.02 | t=2.13 p=0.03 | t=1.16 p=0.25 | |

Table 10: Sector mean DE differences (t) values

Table 10 illustrates the t and p values of the six sectors, with high significant values between Retail, Mining, Education, and Finance against the Engineering sector while ICT was not highly significant against the rest of the sectors.

5.4.1 Individual Effects of Expectancies on DE

Expectancy variables from the first part of the measurement instrument were used independently to measure DE. This was an attempt to determine whether differences existed according to the choice of the expectancy variables. The results revealed that the differences were minor as can be seen diagram 15 below.

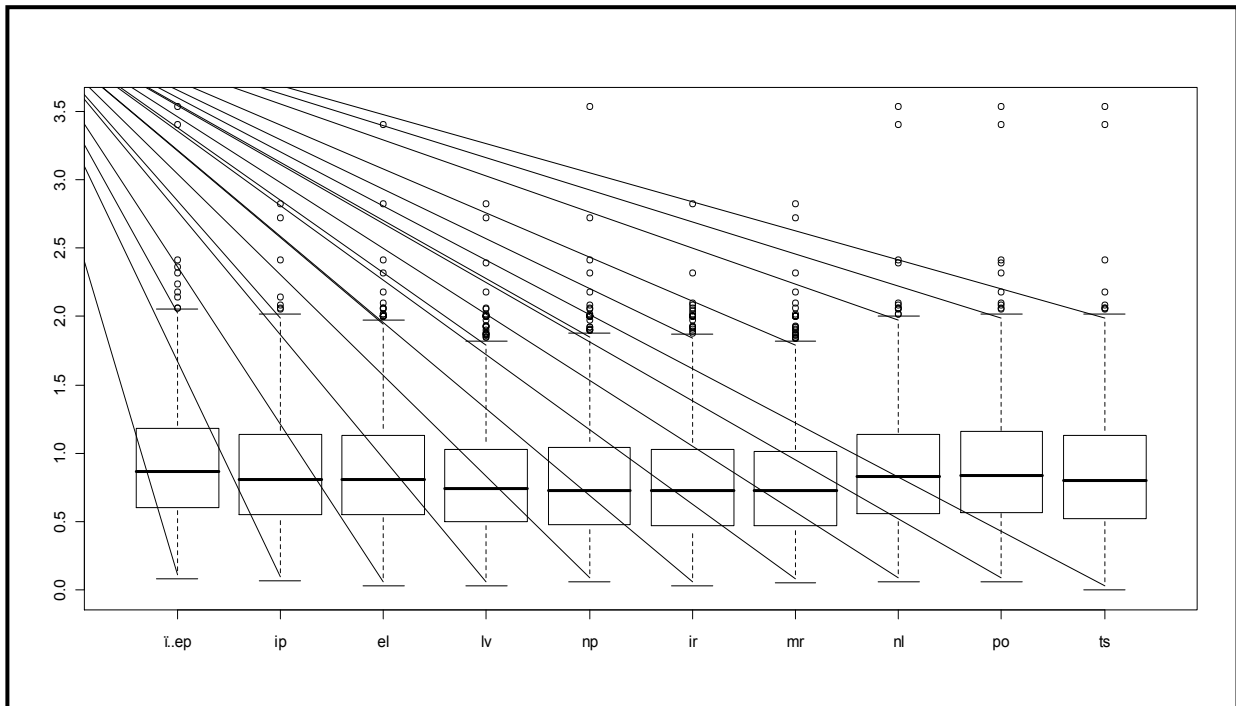


Figure 15: General measure of expectancy Variables

Y axis represents the scores while the X axis shows the expectancy variables.

The box plots indicated that the average value for each of the variables was about 0.80, which is close to the mean value of the DE calculated earlier. The spread of the data was also very similar with intervals around 0.00, 3.53, although the actual upper bound estimate without outliers was around 2.00.

A graphical representation, of the actual DE variation is shown in figure 16 below. It illustrates the variance of DE of the cases from a sub data sample of ($N = 211$). The graph in figure 16 shows that the lower and upper bounds can be attained, and used to set DE threshold intervals. However, this should only be established after many tests.

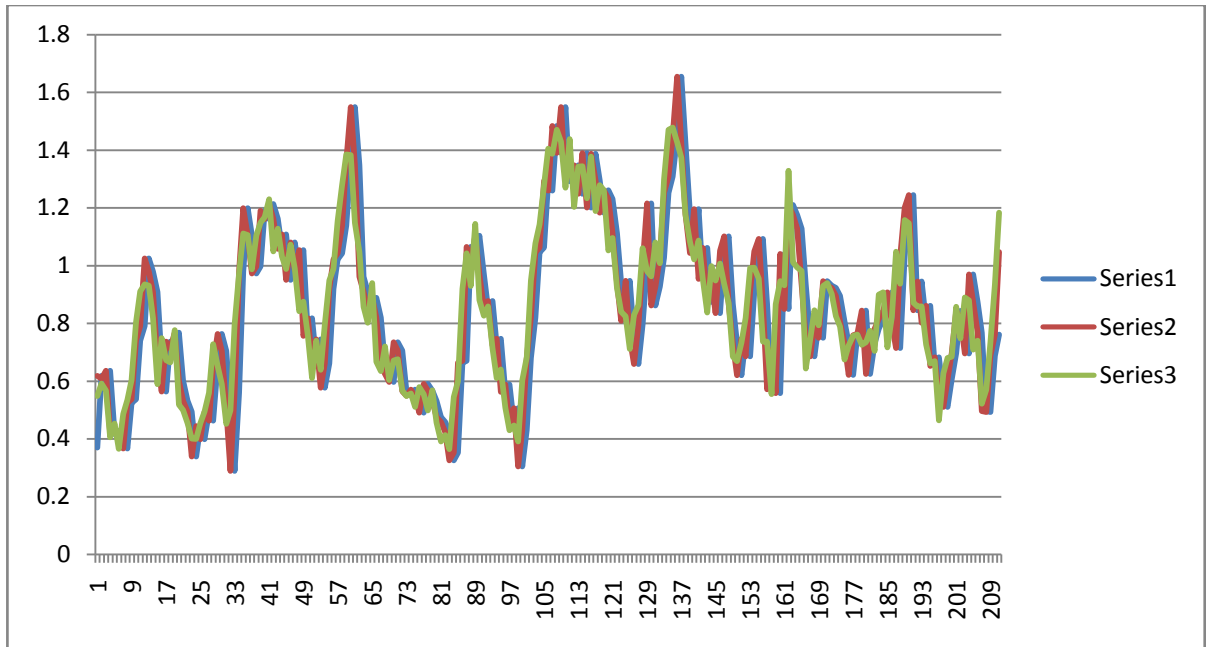


Figure 16: Trends in DE (N=211)

Series 1 and Series 3 are averaged measures approximating Series 2. Series 2 is the average DE.

The variance was between 0.20 and 1.8 with an estimated mean value of 0.80, which is similar to the results in the previous findings. It can be observed that, volatility was highest between cases 29 and 120 while less volatility was recorded between 127 and 211. Establishing such experiments with time would provide insight into trends that can be used for predicting DE.

By using the average indexing method, it is easier to monitor the trends in the data because the equations are relatively easier to implement. It is simpler to make inferences by using indexing that are easy to conduct using large quantities of data. The problem with such an approach is, however, that, combining multiple items into an overall index can lead to underestimation of the degree of correspondence between behavior and other variables. This is because some behaviors are more readily predictable than others are.

5.4.2 Anovas

As part of the preliminary findings, analyses of variance (ANOVA) were conducted with the aim of investigating whether there were differences between groups and within groups in the data. Simple variability in responses with respect to demographical data is useful in providing insight into detailed analyses.

The first level items of discretionary effort were considered first; in an attempt to investigate, whether there existed some differences in the way people responded to the questions on the measurement instrument. The results revealed very low values for the F statistic generally; with highest value of 1.628 and lowest value of .712. There were three variables with significant differences when measured with work experience, namely IP ($p<.05$), NL ($p<.05$) and TS ($p<.013$). The rest of the variables EP, EL, LV, NP, IR, MR and PO did not record significant differences. Gender and age were also tested and the results revealed that; in terms of gender, only LV and IR were significant at $p<.05$. In terms of age, only MR and EP were significant with $p<.05$.

When t test was conducted on the behavior variables of the instrument; with respect to gender, only EO showed significant mean difference with $t = -5.56$ and $p<.05$. The t -test conducted with respect to sector, however, showed PC, and PE as significantly variant within sector groupings. When the same (sector) was considered on the norm variables, the results revealed that WG, PC and EA had strong or significant differences within the sector groupings. The qualification demographic variable caused variance among the behavior variables EE, EO, PC, and EA ($p<.05$). Position in the company indicated that the behavior variables EE, PE, EO, PC and WG were highly significant with $p<.001$, while EA was also significant with $p<.05$. This shows that, behavior was highly influenced by positional status in the company. Experience on the behavior variables showed that EE($p<.05$), PE($p<.05$), PC($p<.05$), WG ($p<.001$) while EO was the only variable that showed no significance between groups. On the norm variables, work experience, however, showed that there was only one variable EA that had significant differences between groups with $p<.05$.

Co-location indicated that only WG on the behavior variable had significant differences between groups ($p<.05$). Virtual location on the other hand revealed that there were no differences between groups at all on both the behavior variable and norms. In order to establish the relationships between the underlying variables, advanced statistical analyses were conducted. These included correlation analysis, factor analysis, regression analysis and structural equation modeling.

5.5 ITEM-LEVEL CORRELATION ANALYSIS

Correlation analysis provided the initial insight into the relationships in the data and subsequent information about the underlying variables. Throughout the research, the Pearson (Pearson, 1913) correlation coefficient was used. Table 11 illustrates the results of the correlation analysis of the item and inter item expectancy and instrumentality (behaviour) questionnaires.

| | | | Correlations | | | | | | | | | | | | | | | | | |
|--------------------------------|--------|--------|--------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Measures | Means | s.d | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | |
| Expectancy Measures | | | Mean | s.d | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1. (EP) Effort Performance | 4.4958 | .62955 | | 1 | | | | | | | | | | | | | | | | |
| 2. (IP) Interpersonal Performa | 4.2036 | .74012 | .291** | | 1 | | | | | | | | | | | | | | | |
| 3. (EL) Effort Learning | 4.2010 | .77829 | .309** | .295** | | 1 | | | | | | | | | | | | | | |
| 4. (LV) Leading Visibility | 3.8675 | .85488 | .244** | .236** | .304** | | 1 | | | | | | | | | | | | | |
| 5. (NP) Network Performance | 3.8268 | .85553 | .232** | .226** | .230** | .179** | | 1 | | | | | | | | | | | | |
| 6. (IR) Internal Recognition | 3.7867 | .96632 | .196** | .222** | .269** | .212** | .284** | | 1 | | | | | | | | | | | |
| 7. (MR) Mutual Reciprocity | 3.7904 | .86279 | .162** | .219** | .251** | .162** | .344** | .323** | | 1 | | | | | | | | | | |
| 8. (NL) Network Learning | 4.2831 | .73711 | .294** | .310** | .364** | .245** | .218** | .211** | .268** | | 1 | | | | | | | | | |
| 9. (PO) Performance outcome | 4.3148 | .75775 | .328** | .235** | .327** | .229** | .253** | .256** | .215** | .395** | | 1 | | | | | | | | |
| 10. (TS) Team Sustainability | 4.1061 | .87517 | .255** | .253** | .271** | .171** | .321** | .260** | .255** | .354** | .378** | | 1 | | | | | | | |
| Behavior measures | | | | | | | | | | | | | | | | | | | | |
| 11. EE Effort construct | 4.0619 | .58149 | .319** | .324** | .360** | .317** | .269** | .246** | .250** | .387** | .347** | .405** | | 1 | | | | | | |
| 12. PE Performance Construct | 4.0273 | .56993 | .292** | .330** | .316** | .257** | .217** | .223** | .251** | .359** | .333** | .350** | .614** | | 1 | | | | | |
| 13. WG Workplace Goals | 3.6190 | .72949 | .219** | .241** | .310** | .270** | .227** | .210** | .223** | .307** | .248** | .327** | .560** | .553** | | 1 | | | | |
| 14. EO Emotion Orientation | 3.7846 | .64016 | .217** | .264** | .256** | .138** | .209** | .165** | .234** | .283** | .206** | .255** | .480** | .527** | .500** | | 1 | | | |
| 15. PC Positive Comparison | 3.6743 | .68862 | .188** | .251** | .284** | .222** | .295** | .202** | .265** | .284** | .207** | .328** | .531** | .528** | .594** | .525** | | 1 | | |
| 16. EA Efficacious Action | 3.4043 | .70807 | .152** | .179** | .285** | .302** | .103** | .165** | .146** | .254** | .190** | .185** | .403** | .409** | .537** | .383** | .462** | | 1 | |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 11: Correlation results including expectancy and behavior

From the output, figure 12 reveals that there was a moderately low and medium correlations among the expectancy items, with the lowest being .162 ($p<.01$), the majority above were .20 ($p<.01$) and the highest of .395 ($p<.01$) between PO and NL. This could be an indication that the items independently influence discretionary behaviour. This further highlights the significance of each one of the expectancy items and the validity of these item variables to the DE process.

The moderately low and medium correlations between the ten expectancy variables and the behavior variables further reveal that, there is a relationship between the two constructs. This relationship could be as a result of the variables playing an important role in the expectancy-behavior process in a professional network environment. This, however, does not at all provide any causal relationship between these two constructs.

An interesting result shows that there is a moderately high and large correlation amongst the behavior item variables. The lowest of these occurred between (PC) positive comparison and (EA) efficacious actions with the value of .383 ($p<.01$). The highest in this category occurred between the Performance Expectance construct and the Effort Expectancy construct with the value of .614 ($p<.01$). It can be observed that a large number of correlations between the behavior variables were above .50, measured at $p<0.01$ confidence level. This suggests that behavior was collectively defined by these item variables. The moderate high correlations also revealed that these item variables are likely to be interdependent and measure the same factor. The other interesting result occurred between the Effort Expectancy construct and Team Sustainability items, with the value of .405 ($p<.01$). This could mean that, where there is belief in the teams sustainability, employees are likely to contribute their effort readily.

The first part (expectancy measures) of the correlations in table 11 forms Class 1 of the set of variables. It illustrates correlations at the work level of the instrument while table 12 below discusses correlations at the organizational level (Class 2). In table 12, correlations are

moderately low. The highest are .40 between PO and NL, .38 between TS and PO and .35 between TS and NL. The lowest was those below .20 that are highlighted in grey in the table above.

Organizational Level (class 2)

| Correlations table (work or organizational level) | | | | | | | | | | | | |
|---|-------------|------------|------|------|------|------|------|------|------|------|------|------|
| Org Level Variables | Mean | s.d | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. (EP) Effort Performance | 4.26 | 0.80 | 1.00 | | | | | | | | | |
| 2. (IP) Interpersonal Performance | 3.95 | 0.86 | 0.41 | 1.00 | | | | | | | | |
| 3. (EL) Effort Learning | 3.85 | 0.88 | 0.35 | 0.38 | 1.00 | | | | | | | |
| 4. (LV) Leading Visibility | 3.80 | 0.95 | 0.31 | 0.31 | 0.36 | 1.00 | | | | | | |
| 5. (NP) Network Performance | 3.92 | 0.92 | 0.35 | 0.35 | 0.30 | 0.32 | 1.00 | | | | | |
| 6. (IR) Internal Recognition | 3.55 | 0.97 | 0.28 | 0.34 | 0.38 | 0.25 | 0.27 | 1.00 | | | | |
| 7. (MR) Mutual Reciprocity | 3.52 | 0.94 | 0.26 | 0.31 | 0.38 | 0.26 | 0.36 | 0.39 | 1.00 | | | |
| 8. (NL) Network Learning | 3.82 | 0.90 | 0.34 | 0.35 | 0.46 | 0.35 | 0.30 | 0.34 | 0.41 | 1.00 | | |
| 9. (PO) Performance outcome | 4.07 | 0.86 | 0.41 | 0.34 | 0.38 | 0.33 | 0.37 | 0.30 | 0.36 | 0.50 | 1.00 | |
| 10. (TS) Team Sustainability | 4.06 | 0.92 | 0.37 | 0.33 | 0.34 | 0.26 | 0.38 | 0.29 | 0.34 | 0.40 | 0.44 | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 12: Correlations at work level

Correlations among expectancies at organization level (class 2) revealed moderately low relationships. These correlations are however, generally higher than the correlations at the personal level of expectancy as shown in table 13 above.

The lowest of these correlations has a value of $r = .25$ ($p < .01$) between IR and LV and the highest with a value of $r = .50$ ($p < .01$) between PO and NL. The rest have values that are higher than $r = .30$ ($p < .01$), an indication that the items are more associated and could determine work behavior more collectively than the personal expectancies (Class 1). This, however, does not imply that workplace expectancies have more influence than personal expectancies. More information in the regression and modeling process should be able to

explain the most effective factor in determining work discretionary behavior from the two expectancy perspectives.

Correlations between individual Class 1 (Personal level) and Class 2 (Organizational level) revealed that corresponding items correlated moderately high. EP and EPW correlated at .399, while IP and IPW at .373. EL and EL recorded a correlation value of .327 whereas LV and LVW was at .426. NP and NPW scored a correlation of .366 while MR and MRW was at .341. The correlation between NL and NLW was at .373 whereas PO and POW was at .452 and lastly, TS and TSW was at .359. All the correlations were significant at $p^{**} < .01$.

It reveals that, there is generally a positive relationship between personal and work perceptions of expectancies. This indicates that there could be value-congruency between the personal and work levels of expectancies.

Table 13 presents correlations of all the items combined, using their averages. Class 1 is represented by Ep while class 2 is given by Ew. The behaviour variables (Class 3) and norms (Class 4) are represented by the initials and a subscripted “p” and “w” for personal and work. For example, EEp and EEw represent variables from class 3 and class 4 variables respectively.

| Correlations | | | | | | | | | | | | | | |
|--------------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AVE | Ep | Ew | EEp | EEw | PEp | PEw | WGp | WGw | EOp | EOw | PCp | PCw | EAp | EAw |
| Ep | 1.00 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|------|--|--|--|--|--|
| Ew | .51** | 1.00 | | | | | | | | | | | | | | | | | |
| EEp | .55** | .31** | 1.00 | | | | | | | | | | | | | | | | |
| EEw | .26** | .47** | .38** | 1.00 | | | | | | | | | | | | | | | |
| Pep | .50** | .28** | .61** | .26** | 1.00 | | | | | | | | | | | | | | |
| Pew | .24** | .44** | .23** | .78** | .31** | 1.00 | | | | | | | | | | | | | |
| WGp | .44** | .20** | .56** | .29** | .55** | .27** | 1.00 | | | | | | | | | | | | |
| WGw | .25** | .43** | .22** | .70** | .23** | .75** | .47** | 1.00 | | | | | | | | | | | |
| EOp | .38** | .22** | .48** | .20** | .53** | .22** | .50** | .249** | 1.00 | | | | | | | | | | |
| EOw | .20** | .36** | .17** | .66** | .20** | .73** | .28** | .74** | .31** | 1.00 | | | | | | | | | |
| PCp | .44** | .26** | .53** | .30** | .53** | .27** | .59** | .31** | .53** | .27** | 1.00 | | | | | | | | |
| PCw | .21** | .36** | .20** | .66** | .21** | .68** | .30** | .70** | .23** | .73** | .44** | 1.00 | | | | | | | |
| EAp | .34** | .11** | .40** | .24** | .41** | .20** | .54** | .28** | .38** | .26** | .46** | .24** | 1.00 | | | | | | |
| EAw | .18** | .31** | .16** | .62** | .17** | .63** | .28** | .67** | .20** | .71** | .25** | .69** | .48** | 1.00 | | | | | |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 13: Averaged values correlations of all the scales

The results revealed that, there were generally high correlations among the items particularly between PEw and PEw ($r=.78$), PEw and WGw ($r=.75$), WGw and EOw ($r=.74$), EOw and PCw ($r=.73$), PCw and WGw ($r=.70$), WGw and EEw ($r=.70$), EAw and EOw ($r=.71$), EAw and EOw ($r=.69$). The rest are PCw and PEw ($r=.68$), EAw and WGw ($r=.67$), EOw and EEw ($r=.66$), PCw and EEw ($r=.66$), EAw and PEw ($r=.63$) and PEw and EEw ($r=.61$). The rest are moderately related indicating that they could be independent but measuring the same construct. It should be noted that high correlations occurred between variables of the same set or same part of the instrument that is, among members of class 3 or class 4.

5.6 FACTOR ANALYSIS

Factor analysis was used to group variables into few factors that were investigated in detail. Reducing the number of elements makes the data more manageable and improves the

accuracy of the research. It is used to either confirm or construct the causal structure. In this study factor analysis was used to determine the factor structure of the VIEA interactive model. Table 14 below contains 10 variables or items from the first part of the measurement instrument (class 1). These were analysed using principle component factor analysis. A two solution factor component emerged as illustrated in table 14.

Individual Level or Personal side

| Rotated Component Matrix ^a | | |
|--|-----------------------------------|------|
| Individual Level Variables | Components of Personal Expectancy | |
| | 1 | 2 |
| Effort performance Expectancy(EP) | .660 | |
| Interpersonal Performance Expectancy(IP) | .548 | |
| Effort Learning Expectancy (EL) | .636 | |
| Leading Visibility Expectancy(LV) | .573 | |
| Network Performance Expectancy(NP) | | .707 |
| Internal-Recognition Expectancy(IR) | | .643 |
| Mutual Reciprocity Expectancy (MR) | | .762 |
| Network Learning Expectancy(NL) | .648 | |
| Performance Outcome Expectancy(PO) | .615 | |
| Team Sustainability Expectancy(TS) | .429 | .454 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 14: Personal level 2 factor solution

The first component (1) includes Effort Performance Expectancy (with commonality of .660) as the leading item. Network Learning Expectancy followed this (with commonality of .648) and the rest are Effort Learning Expectancy (.636), Performance Outcome Expectancy (.615), Leading Visibility Expectancy (.573) and Interpersonal Performance Expectancy (.548).

The second component (2) consists of Mutual Reciprocity Expectancy (0.762) as the leading item followed by Network Performance Expectancy (0.707) and Internal Recognition Expectancy (0.643). It can be deduced that Effort Performance and Mutual Reciprocity define expectations at the personal level. Team Sustainability Expectancy recorded a

considerable high commonality value of 0.429 on the first component and 0.454 on the second component. This implies that Team Sustainability Expectancy shares the importance of both components one and two in the professional networks.

The total variance explained from the above analysis was 44.3%. The first component had an Eigen value of 3.388 and accounted for 33.9% of the variance while the second component had an Eigen value of 1.039 and accounted for 10% of the total variance. These results are reported in table 1 of factor analysis in appendix E.

At organizational level (Class 2), the items yielded a one factor solution as illustrated in table 15 below. This reveals consistence or homogeneous view on the part of the organization to the expectancy items in question. It also confirms the smaller variances in the responses as compared to the variances at the individual level as stated earlier in this chapter.

Work side (class 2)

| Component Matrix^a | |
|--|---|
| Work Level Variables | Component of Work perceived expectancies |
| | 1 |
| Effort performance Expectancy(EP) | .632 |
| Interpersonal Performance Expectancy(IP) | .640 |
| Effort Learning Expectancy (EL) | .681 |

| | |
|--|------|
| Leading Visibility Expectancy(LV) | .574 |
| Network Performance Expectancy(NP) | .618 |
| Internal-Recognition Expectancy(NP) | .588 |
| Mutual Reciprocity Expectancy (MR) | .633 |
| Network Learning Expectancy(NL) | .704 |
| Performance Outcome Expectancy(PO) | .701 |
| Team Sustainability Expectancy(TS) | .647 |
| Extraction Method: Principal Component Analysis. | |
| a. 1 components extracted. | |

Table 15: Work level factor solution

From table 15, Network Learning Expectancy (.704) is the leading item and is considered to define expectancies at the work level (Class 2). This was followed by Performance Outcome Expectancy (.701), Effort Learning Expectancy (.681), Team Sustainability Expectancy (.647), Interpersonal Performance Expectancy (.640), Mutual Reciprocity Expectancy (.633), Network Performance Expectancy (.618) and Internal Recognition Expectancy (.588).

Eigen value for the extraction of the one component was 4.136 and the total variance explained was about 41.4%.

The third factor analysis was conducted on the behavior response variables (Class 3) and the norms (Class 4). A six components factor solution emerged on Class 3 while a three component factor solution was obtained on class 4. The results are recorded in the table 16 below, with major columns showing the two factor classes.

| Components: Behavior Variable Level (Class 3) | | | | | | | Components: Norms Level (class 4) | | | |
|---|-------|------|------|-------|------|-------|-----------------------------------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | | 1 | 2 | 3 |
| EE1 | .567 | .135 | .110 | .116 | .238 | -.133 | EE1 | .300 | .158 | .684 |
| EE2 | .597 | .026 | .155 | .006 | .146 | .175 | EE2 | .246 | .202 | .780 |
| EE3 | .253 | .307 | .075 | -.026 | .570 | -.069 | EE3 | .176 | .345 | .657 |
| EE4 | .327 | .289 | .394 | .073 | .121 | -.242 | EE4 | .296 | .356 | .545 |
| EE5 | .650 | .055 | .075 | .109 | .069 | .118 | EE5 | .523 | .044 | .389 |
| PE1 | .536 | .180 | .116 | -.059 | .304 | .247 | PE1 | .342 | .316 | .595 |
| PE2 | -.026 | .035 | .424 | .036 | .426 | .067 | PE2 | .226 | .289 | .685 |

| | | | | | | | | | | |
|-----|-------|-------|-------|-------|-------|-------|-----|------|------|------|
| PE3 | .349 | -.036 | .056 | .124 | .589 | .089 | PE3 | .407 | .248 | .549 |
| PE4 | .593 | .109 | .144 | .264 | .086 | .044 | PE4 | .596 | .152 | .424 |
| PE5 | .493 | .300 | .087 | .300 | -.020 | .001 | PE5 | .602 | .144 | .341 |
| WG1 | .220 | .670 | .053 | .016 | .132 | -.066 | WG1 | .375 | .398 | .442 |
| WG2 | .244 | .386 | .506 | .084 | -.213 | .074 | WG2 | .475 | .399 | .317 |
| WG3 | .379 | .197 | .522 | .137 | .048 | -.090 | WG3 | .675 | .214 | .282 |
| WG4 | .456 | .247 | .398 | .092 | .078 | -.088 | WG4 | .686 | .263 | .270 |
| WG5 | .434 | .466 | .239 | .188 | -.050 | -.037 | WG5 | .657 | .316 | .203 |
| EO1 | .319 | .020 | .539 | .103 | .074 | .239 | EO1 | .421 | .420 | .350 |
| EO2 | .255 | .246 | .507 | .151 | .111 | .146 | EO2 | .440 | .494 | .325 |
| EO3 | -.037 | .011 | .602 | .127 | .162 | .053 | EO3 | .193 | .575 | .180 |
| EO4 | -.008 | -.037 | .232 | .233 | .435 | .387 | EO4 | .433 | .490 | .234 |
| EO5 | .301 | .013 | .054 | .424 | .408 | .050 | EO5 | .462 | .474 | .300 |
| PC1 | .385 | .311 | .162 | .330 | .152 | -.022 | PC1 | .470 | .497 | .278 |
| PC2 | .133 | .049 | .132 | .735 | .107 | -.074 | PC2 | .503 | .428 | .257 |
| PC3 | .348 | .125 | .154 | .384 | -.240 | .395 | PC3 | .521 | .402 | .173 |
| PC4 | .070 | .366 | .195 | .570 | .129 | .050 | PC4 | .367 | .587 | .171 |
| PC5 | .374 | .161 | .382 | .443 | -.166 | .130 | PC5 | .463 | .277 | .102 |
| EA1 | .040 | .174 | .092 | -.032 | .112 | .614 | EA1 | .078 | .625 | .287 |
| EA2 | .141 | .494 | .211 | .208 | .233 | .146 | EA2 | .333 | .641 | .255 |
| EA3 | -.069 | .683 | .100 | .050 | -.072 | .193 | EA3 | .051 | .732 | .138 |
| EA4 | .366 | .438 | -.055 | -.066 | -.010 | .481 | EA4 | .254 | .507 | .203 |
| EA5 | .139 | .646 | .104 | .166 | .046 | .166 | EA5 | .348 | .615 | .207 |

Table 16: Behavior/Instrumental Factor solutions

Table 16 illustrates a Rotated Principle Component Factor Analysis Results. For clarity and logical handling of the data, the emerging factors were classified in respective sigma algebras.

The classes of sigma algebras (σ) from the table 19 above can be written as σ_1 . **{EE(.65 commonality) {EE1,EE2, EE5, PE1, PE4,PE5, PC5, PC1, EE4, WG4, WG5, EA4},** σ_2 . **EA(.68 commonality) {WG1, EA2, EA3, EA5, WG5, PC1, EA4, EE4},** σ_3 . **EO(.60 commonality) {WG2, WG3, EO1, EO2, EO3, PC5, EE4, PE2, WG4},** σ_4 . **PC(.74 commonality) {PC2, PC4, EO5, PC5, PC1}.** σ_5 . **PE(.59 commonality) {EE3, PE3, PE2, EO4,EO5}** and σ_6 . **EA(.61 commonality) {EA1, EA4, PC3, EO4}** }

The first two letters preceding each set represent a subset of the entire set of six components. The components can thus be denoted as EE, EA, WG, EO, PC, PE and EA comprising different variables each arising from different factors. Board letters illustrate variables with higher influence that are not shared by other sets. Simple trends can be seen, showing that EE and PE are grouped in one category as factor 1. EA dominates factor 2 while factor 3 is

influenced by WG and EO. Factor 4 is moderately represented by PC and the rest namely PE and EA weakly represent factors 5 and 6. This is because PE and EA are well represented in other factors in a more homogeneous manner. Vetting these variables in a strictest way leaves 4 factors determined by EE, EA, EO and PC. These factors confirm largely the VIEA model as stipulated in the theory at the beginning of this chapter (April, 2006).

At the work level Class 4, however, only three components emerged, namely: **EE**, **EA** and **WG**. The first two components **EE** and **EA** were consistent with the above but it can be seen that WG was in fact representative of EO and PC. Generally, the factors were not very significantly different but were fewer than the previous class. One important conclusion is that, from the first group, the factors reduced to half when compared at both individual and work level. The same trend was visible for the second group according to the results from the two classes. In future research, it would be important to rearrange the questions whose measures have been identified to fall in unexpected factors. Alternatively, it would be easier to establish a functional measure that would transform such variables in order to have a refined instrument.

Particularly interesting again were the EP, MR and TS variables identified earlier, as they significantly influence expectancies. Another important result is that as revealed by the sets above, EE and PE are the determinants of instrumentality and fall in the same sigma algebra set σ_1 . WG and EO were the main influencers of valence and belonged to one sigma algebra σ_3 . PC and EA determined self-affirmation.

5.6.1 Modeling with Classes

The modeling process was conducted using Lisrel Software. The main aim was to test whether and how VIE, VIEA models would fit the data and inductively validate the measurement instrument, and at the same time showing that the hypothetical constructs on DE are worthwhile exploring. Table 1 and table 2 constitute class A (VIE) and class B (VIEA) forming group 1 of variables derived from factor analysis. Table 3 and 4 compose classes C and D, which is group 2. Group 1 represents the personal perspective of employees on the measurement instrument while group 2 expresses the work perspective of the employee or company's perception on DE.

| Personal without A (VIE). | | | | | | | | |
|----------------------------------|-------|-------|-------|-------|-------|-------|----------------|-------------|
| Measurements Equations | | | | | | | | |
| | EP | MR | EE | PE | EO | WG | R ² | t-statistic |
| E | 0.656 | | | | | | 0.112 | 5.256 |
| E | | 1.000 | | | | | 0.125 | 14.465 |
| I | | | 1.000 | | | | 0.663 | 9.789 |
| I | | | | 0.894 | | | 0.581 | 17.691 |
| V | | | | | 0.706 | | | |
| V | | | | | | 1.000 | 0.541 | 10.895 |
| Structural Equations | | | | | | | | |
| | E | V | | | | | | |
| I | 0.452 | | | | | | 0.841 | 0.935 |
| I | | 0.586 | | | | | | 2.494 |
| E | | 0.462 | | | | | 0.660 | 6.227 |

Table 17: Class A (VIE)

From table 17, load factors were high, consistent with the factor analyses results that the endogenous variables influence the latent variables significantly. The R^2 values were significant, indicating that, the variances in relationship between the manifest and latent variables were adequately accounted for. The least accounted for, variances occurred between EP and E (0.112) as well as between MR and E (0.125). The t -statistics were highly significant greater than the recommended 1.96 (at least for organizational surveys) except for the causal relationship between E and I (0.935) as shown on the structural equation part of the table.

For models to be adequate and acceptable, as fitting the sample data, goodness of fit indices (*GFI*) were used. From class A, the degrees of freedom (df) was 6 and chi-square of 13 ($p = 0.0333$). The root mean square (*RMSEA*) was 0.0431, less than 0.05, a very good achievement. The goodness of fit Index was 0.993 and the Normed Fit Index (*NIF*) at 0.990.

These are significantly adequate and acceptable results.

| Personal level with A (VIEA) | | | | | | | | | |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|
| | EP | MR | EE | PE | EA | PC | EO | WG | t-statistics |
| E | 0.627 | | | | | | | | 0.111 |
| E | | 1.000 | | | | | | | 0.135 |
| I | | | 1.000 | | | | | | 0.655 |
| I | | | | 0.906 | | | | | 0.594 |
| A | | | | | 0.656 | | | | 0.315 |
| A | | | | | | 1.000 | | | 0.733 |
| V | | | | | | | 0.739 | | 0.391 |
| V | | | | | | | | 1.000 | 0.505 |
| Structural Equations | | | | | | | | | |

| | V | I | E | A |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
| V | 0.258 (0.042) 6.176 | | | |
| I | 0.212 (0.025) 8.317 | 0.210 (0.028) 7.600 | | |
| E | 0.129 (0.031) 4.181 | 0.117 (0.026) 4.465 | 0.096 (0.052) 1.827 | |
| A | 0.293 (0.033) 8.915 | 0.221 (0.026) 8.614 | 0.112 (0.030) 3.684 | 0.352 (0.052) 7.076 |

Table 18: Class B (VIEA)

In class B, the R^2 are significantly high except for the relationships between EP and E, (0.111) as well as between MR and E (0.135). The t -statistics in this class are all highly significant illustrating that, all the relations between the variables in this class are strong and important. The load factors are very significant considering that, there are more variables measured in class B than in class A. The t -statistics measuring the effects among the latent variables are all very high a significant shift from class A. This is consistent with fundamental regression analysis that claims that the more variables at play the better the representation of the causal structures as more information is elicited. It can be deduced that the self- affirmation component (In Class B) reinforces causality among the underlying variables. The variable, self-affirmation (A), is therefore, a justifiable influencer in DE with t -statistics of 8.368 and 3.782 on the measurement equation and t -statistics of 8.915, 8.614 and 3.684 in the structural equation.

Class B had 13 degrees of freedom (df) and a chi-square of 7 ($p = 0.878$). The Root Mean Square was 0.0, with both *GFI* and *NFI* at 0.994 as well. There was a slight improvement in all these measurements as compared to the results of Class A. This reveals that the model fit in the same group was very close.

| Work without A (VIE). | | | | | | | | |
|------------------------|------------------------------|-----------------------------|-------|-------|-------|-------|----------------|--------------|
| Measurements Equations | | | | | | | | |
| | EP | MR | EE | PE | WG | EO | R ² | t-statistic |
| E | 0.832 | | | | | | 0.258 | 7.140 |
| E | | 1.000 | 0.691 | | | | 0.261 | 13.198 |
| I | | | 0.445 | | | | | 3.353 |
| I | | | | 1.000 | | | 0.841 | 6.003 |
| V | | | | | .8017 | | 0.763 | 28.230 |
| V | | | | | | 1.000 | 0.727 | 12.933 |
| Structural Equations | | | | | | | | |
| | E | V | | | | | R ² | t-statistics |
| I | -0.0064 (0.109) -0.059 | 0.983 (0.0556) 17.683 | | | | | 0.875 | 17.683 |
| I | ----- | 0.356 (0.0434) 8.203 | | | | | 0.371 | 8.203 |
| <i>E</i> | | | | | | | | |

Table 19: Class C (VIE)

Class C and Class D examines the work perspective of the DE. In table 19 above, it is observed that the loader factors are significantly high with the least of 0.445 between EE and I. R^2 revealed that more information was accounted for in the relationships between the variables when compared to both class A and B. The t -statistics were also consistently high on both the measurement equation and the structural equations. This result also indicates that group 2 was more consistent, both in relations between the variables, and further revealing the internal consistency of the work aspect of items on the measurement instrument.

In class C, the df was 5 and chi-square of 3 ($p = 0.618$). $RMSEA$ was at 0.0 and GFI was 0.998 with NFI at 0.999. When compared to classes A and B, these results are more accurate.

(Class D)

| Work with A (VIEA) | | | | | | | | | |
|-------------------------------------|------|----|----|----|----|----|----|----|-----------------------------|
| Measurement Equations with A (VIEA) | | | | | | | | | |
| | EP | MR | EE | PE | WG | EO | PC | EA | R ² t-statistics |
| E | 0.86 | | | | | | | | 0.259 7.128 |

| | | | | | |
|----------------------|----------------------------|-------|---------------------------|-----------------------------|-----------------------------|
| E | 1.000 | | | 0.244 | 13.687 |
| I | | 0.699 | | 0.712 | 11.871 |
| E | | 0.475 | | ----- | 3.353 |
| I | | | 1.000 | 0.824 | 6.894 |
| V | | | 0.982 | 0.741 | 30.238 |
| V | | | 1.000 | 0.749 | 13.752 |
| A | | | 1.000 | 0.705 | 12.933 |
| A | | | 0.843 | 0.671 | 25.398 |
| Structural Equations | | | | | |
| | V | I | E | A | R ² t-statistics |
| V | ----- | ----- | ----- | ----- | |
| I | 2.079 (0.109) 0.288 | ----- | 0.031 (0.967) 2.145 | -1.060 (0.057) -1.196 | 0.941 2.145 |
| E | 0.336 (0.0413) 8.133 | ----- | ----- | ----- | 0.364 8.133 |
| A | ----- | ----- | ----- | ----- | |

Table 20: Class D (VIEA)

Class D in group 2 was by far the most well represented both in terms of loader factors and index measurements of the amount of variances accounted for and the significance of those variables as revealed by the *t*-statistics when compared with the other classes. This illustrates that when classes are ranked according to how well they revealed the causal validity of DE, class D is ranked first, followed by class C, then B and lastly A. Construct validity are illustrated in-groups 1 and 2, revealing a trend in factor loading between the groups. Classification as well as categorization of data is, therefore, highly visible and necessary in this result and is an important result in DE research. This is important because DE is a continuum based on the emergence and convergence of varying variables often stemming from motivation in human psychology and other non-motivational variables that are equally vital. VIEAs are not only better than VIEs between classes but they are also distinct within groups. Diagrams from the class models appear in appendix G.

For class D, the *df* was 14 while the chi-square was 26 ($p = .0240$). The *p*-value was the lowest of all the classes. *RMSEA* was at .0358, *GFI* of .991 and *NFI* at .995. These are optimal results and highly acceptable. Although, other indices indicated that D may slightly be less likely optimal as compared to other classes, the scores are in all counts higher than the recommended values and the results on the validity in table 4 reflect that indeed class D is the

most well represented class. One interesting finding on the D class was that self-affirmation was not significant compared to the rest of the classes.

The next section contains data and results of a larger set of variables (i.e., all the parts of the instrument combined at the personal level) factored in order to establish further details of causality in the underlying items. The essence was to understand the relationships in a broader sense and to explore the DE model. The criteria provided additional information in establishing the fundamental relationship of variables and norms deemed important for DE.

Table 21 below combines the items from classes 1 and 3 (All items at personal level) which are expectancy and behaviour variables. The reason is to further investigate whether certain classifications can emerge in the data that relate to some combinations of expectancies and behaviour. Identification of these classes can help to further understand the actual relationships among such classes.

All the items for personal expectancies and behaviour variables (Class 1 and Class 3)

| Rotated Component Matrix ^a | | | | | | | |
|--|------|------|-----------|------|------|------|---|
| | Mean | S.D | Component | | | | |
| | | | 1 | 2 | 3 | 4 | 5 |
| Effort performance Expectancy(EP) | 4.50 | .63 | | .638 | | | |
| Interpersonal Performance Expectancy(IP) | 4.26 | .80 | | .602 | | | |
| Effort Learning Expectancy (EL) | 4.20 | .74 | | .627 | | | |
| Leading Visibility Expectancy(LV) | 3.93 | .87 | | .578 | | | |
| Network Performance Expectancy(NP) | 4.20 | .78 | | .631 | | | |
| Internal-Recognition Expectancy(NP) | 3.84 | .89 | | .527 | | | |
| Mutual Reciprocity Expectancy (MR) | 3.87 | .85 | | .566 | | | |
| Network Learning Expectancy(NL) | 3.79 | .96 | | .652 | | | |
| Performance Outcome Expectancy(PO) | 3.83 | .86 | | .698 | | | |
| Team Sustainability Expectancy(TS) | 3.91 | .93 | | .617 | | | |
| Effort Expectancy Construct | 3.79 | .97 | | | .649 | | |
| Effort Expectancy Construct | 3.56 | .98 | | | .742 | | |
| Effort Expectancy Construct | 3.79 | .86 | | | .628 | | |
| Effort Expectancy Construct | 3.52 | .95 | | | .515 | | |
| Effort Expectancy Construct | 4.28 | .74 | .480 | | .326 | | |
| Performance Expectancy Construct | 3.82 | .92 | .418 | | .564 | | |
| Performance Expectancy Construct | 4.31 | .76 | | | .653 | | |
| Performance Expectancy Construct | 4.07 | .86 | .462 | | .511 | | |
| Performance Expectancy Construct | 4.11 | .88 | .622 | | | | |
| Performance Expectancy Construct | 4.06 | .93 | .578 | | | | |
| Achievements of Workplace Goals | 4.17 | .85 | .405 | | | .404 | |
| Achievements of Workplace Goals | 3.45 | 1.14 | .516 | | | | |
| Achievements of Workplace Goals | 4.25 | .834 | .667 | | | | |
| Achievements of Workplace Goals | 3.42 | 1.18 | .679 | | | | |

| | | | | |
|--|------|------|------|------|
| Achievements of Workplace Goals | 4.26 | .84 | .658 | |
| Emotional Orientation for Desired Outcome | 3.31 | 1.18 | .530 | |
| Emotional Orientation for Desired Outcome | 3.49 | 1.05 | .560 | |
| Emotional Orientation for Desired Outcome | 2.84 | 1.20 | .394 | .418 |
| Emotional Orientation for Desired Outcome | 4.14 | .887 | .577 | |
| Emotional Orientation for Desired Outcome | 3.71 | 1.15 | .617 | |
| Positive Comparison of expectancy with peers | 4.22 | .82 | .573 | |
| Positive Comparison of expectancy with peers | 3.21 | 1.19 | .613 | |
| Positive Comparison of expectancy with peers | 3.66 | 1.02 | .639 | |
| Positive Comparison of expectancy with peers | 3.07 | 1.26 | .547 | |
| Positive Comparison of expectancy with peers | 4.42 | .72 | .500 | |
| Self is seen to have Capacity for Efficacious Action | 3.51 | 1.16 | | .498 |
| Self is seen to have Capacity for Efficacious Action | 4.03 | .89 | | .546 |
| Self is seen to have Capacity for Efficacious Action | 3.45 | 1.14 | | .717 |
| Self is seen to have Capacity for Efficacious Action | 3.80 | 1.06 | | .555 |
| Self is seen to have Capacity for Efficacious Action | 3.40 | 1.22 | .482 | .559 |

Table 21: Four factor solution for class 1 and 3 variables

A four factor solution which emerged in table 21 confirmed the suggested VIEA model. The first component (1) included variables from the Performance expectancy construct, Achievement of workplace goals, Emotional Orientation for the desired Outcome and Positive Comparison of expectancy with peers. The second (2) component consists of only Expectancy Values (Class 1) as expected while the third (3) components comprised Effort and Performance Expectancy constructs. The last component four (4) consists of the Efficacious Action Items. Component one accounted for 36% of the total information in the data. Component two accounted for 8%, while component three accounted for 3.4% and component four catered for about 3%. In total, about 52% of the variance in the data was accounted for by the four components. A link existed between component three and one as indicated by performance expectancy construct variables scoring considerable significant values on both components.

Eigen values greater than one were five, although the last component was dropped as it did not contain any meaningful information. Component one had an Eigen value of 14.3 and accounted for 35.7% while component two recorded an Eigen value of 3.2 and accounted for 8% of the variance. Component three recorded an Eigen value of 1.36 and had accounted for

3.4% while component four registered an Eigen value of 1.11 and accounted for 2.8% of the total variance. The table of Eigen values is found in appendix E.

Table 22 illustrates the factor values for the entire questionnaire items. The importance of this was to explore whether there were certain patterns in the data due to the four aspects of the concepts measured. For example, could there be a factor structure resulting from considering variables from class 2 and class 3? In simple terms, does organizational perspective of expectancies influence discretionary behaviour and does organizational view of expectancy relate to norms?

Averaged variables

| Rotated Component Matrix ^a | | | | | |
|---|--------|--------|-----------|------|------|
| | Mean | S.d | Component | | |
| | | | 1 | 2 | 3 |
| Epersonal | 4.0876 | .46742 | | .524 | .643 |
| Ework | 3.8762 | .58326 | | | .780 |
| EEpersonal | 4.0619 | .58149 | | .712 | .410 |
| EEwork | 3.3493 | .88723 | .794 | | |
| PEpersonal | 4.0273 | .56993 | | .730 | |
| PEwork | 3.3269 | .91792 | .840 | | |
| WGpersonal | 3.6190 | .72949 | | .796 | |
| WGwork | 3.0529 | .94792 | .848 | | |
| EOpersonal | 3.7846 | .64016 | | .709 | |
| EOwork | 3.0284 | .93908 | .869 | | |
| PCpersonal | 3.6743 | .68862 | | .749 | |
| PCwork | 3.1256 | .98956 | .838 | | |
| EAPpersonal | 3.4043 | .70807 | | .727 | |
| EAWwork | 2.8907 | .91643 | .838 | | |
| Extraction Method: Principal Component Analysis. | | | | | |
| Rotation Method: Varimax with Kaiser Normalization. | | | | | |
| a. Rotation converged in 5 iterations. | | | | | |

Table 22: Factor solution for all items

Because of the hugeness of the data set, averaged items could be used. This reduces the complexity and facilitates interpretation of results. Besides, the previous factor analysis had already addressed some of the solutions. Although averaged items may not provide the accurate results as it does not specifically look at each individual item measure, it does, however, provide more representative and generalised results.

From the results in table 22, high commonality values were obtained at the organizational level (Class 2) all extracted into the first (1) component. The leading item was Emotion orientation with a commonality value of 0.869. The second (2) component contains the variables at the personal level (Class 1) with achievements of workgroup as the leading variable with commonality value of 0.796. The third component consists of values from the expectancy instrument with the leading variable as the Effort Performance Expectancy and commonality value of 0.780. It was noted also that, the Effort Performance Expectancies, both at the work (Class 2) and personal level (Class 1) belonged to component (3). However, the personal level variable in component three (3) is also connected to component two (2) which measures the behavior variables also at the personal level (Class 3).

The averaged values accounted for three component factors and explained 70.4% of the variance in the data. Component 1 with an Eigen value of 6.195 accounted for 44% and component 2 had an Eigen value of 2.53 and accounted for 18.1% of the total variance. Component 3 had a 1.12 Eigen value and accounted for 8% of the variance in the data. The cumulative variance amounted to 70.4% as indicated in table of factors in appendix E. An interesting result is that both the personal aspect (Class 1) and the organizational aspect (Class 2), though independent, relate to behaviour component (Class 3) and not to norms (Class 4).

The measurement of behavior was more defined by emotion orientation, i.e., allow for the expression of emotion as it relates to performance and under performance of network members who proactively seek out opportunities to assist network members; prefer non-finance rewards over financial rewards; preference of specific recognition and feedback concerning individual contribution and consistently demonstrating high levels of respect for the network members were critical. This could mean that emotion orientation which is a

valence measure is very important in the way organizations are perceived to measure individual discretionary behavior. Factor two (individual behavior) revealed that work groups which involved themes such as: individuals exploring un-conventional ideas and different approaches that could eventually be important for their network to know; monitoring whether individual network members proactively seek project engagement; individuals realigning their goals to meet network goals; continuously seeking to promote network process; build a broad base of support were considered to be vital.

5.7 REGRESSION ANALYSES

The results for the regression analyses suggest possible causal relationships between the underlying expectancy and the corresponding behavior variables. Hypotheses testing was subsequently conducted in order to verify or refute the claims of the hypothetical framework. The DE framework was then tested for construct validity using structural equation modeling.

At the individual level, three leading variables with the highest commonality values from the factor analysis were initially considered for regression. This was to establish whether the behavior variables in the second part of the instruments were the cause of variability in expectancy. Miller & Grush (1988) also used this procedure. Given the statistical equivalence of the three indices described in the previous chapter, a sample selected outcome index in the principle analyses was used. This approach is supported by other studies (Davidson & Jaccard, 1979; Kopelman, 1977). Table 26 below illustrates the results with R value of 0.34 and the coefficient of determination value of 0.118. The dependent variable was Effort-Performance Expectancy (EP), which was the leading variable in the factor analysis table. The $F(6,1542)$ statistic of 34.275 indicates a good reliability measure of the variance counted for in the data, showing that the model was well predicated than would have shown by mere guesswork. The independent variables identified as predictors of EP were EE and PE. EE had a t -value (≥ 1.96) of 6.573, tolerance level of 0.525 and (variance inflation factor) VIF of 1.905. The t -value (≥ 1.96) for PE was 4.298 with tolerance of 0.510 and VIF

of 1.960. These measurements are all within the statistically acceptable levels. It shows that the two indicator factors are appropriate and there was no multi-collinearity in the data as the *VIF* was adequately less than 2.0 threshold point. The Eigen values showing condition index, were also within the acceptable values of less than 30. The standardized coefficients of .13 and .14 for EE and EP showed reasonable loading on the indicator variables. The variables WG, EO, PC and EA were not significant and therefore redundant in this regression.

When mutual reciprocity was considered, as a dependent variable against the behavior constructs (instrumentalities), results showed *R*-value of 0.312. The coefficient of determination was, however, small (.10) indicating that the information accounted for was very little. This shows also that, the other information could be determined with the other remaining factor. The *F* (6, 1541) value of 27.52 was big enough to prove that the process was effective at measuring the variances in the dependent variable. The sig. value of $p < 0.01$ further showed that the relationship was highly significant. The *t*-statistics with values of greater than 1.96 are acceptable and the variables returned.

The overall regression proved adequate with significant *beta* values. Collinearity diagnostics revealed that the *VIF* were in the acceptable range. The tolerance levels were also very high implying that, the independent variables accounted for large portions of the variances in the dependent variable. The Eigen value through the condition index also revealed that there were no collinearity problems as the highest value was only 30.198. Condition index with values about 35 are problematic. The accepted independent variables therefore, included, EE ($t=2.644$), PE ($t=2.481$), EO (2.439) and PC (3.897). EA ($t=0.750$) and WG ($t=-0.930$) recorded very low *t*-values and, therefore, were eliminated from the final regression equation for the MR model.

Team Sustainability (TS) expectancy variable was the bridging variable in the factor analysis between EP expectancy and MR. When regression analysis was conducted with TS as a dependable variable with the behavior variables as independent variables, the model was well fitted than both with the EP and MR variables with the value of *R* at 0.442 and the coefficient of determination of 0.195. An $F(6, 1541) = 61.984$ was adequate for this model and the *VIF*

values were within the acceptable ranges. A *VIF* of greater than 2 can be problematic. Secondly, the change in the partial and part correlations did not either show sudden increase or decrease showing that there was no problem with collinearity. This is confirmed by the values of the conditional index being slightly above and below 30. Tolerance levels were also reasonably high, indicating that enough information in the independent variables had been accounted for in the determination of dependent variable. The *t* values revealed that, EE ($t=7.936$), PE ($t=3.568$), WG ($t=2.865$), EO ($t= -0.231$), PC ($t=3.462$) and EA ($t= -2.218$). The EO was the only variable with a *t* value that was less than the recommended 1.96 and was therefore, omitted from the final model. It was also interesting to see that EA affected TS negatively as indicated by the negative *Beta* value -2.31. The *VIF* (around 2 and less) and tolerance (all above 50%) values were also in the acceptable range.

In summary MR is significantly caused by EE, PE, EO and PC, while EP is causally related to EE and PE; and TS is causally associated with EE, PE, WG, PC and EA. It can be observed that EE and PE are common in all the three expectancy variables. PC is common to MR and TS while EO and PC belong exclusively to MR and WG, PC and EA to TS respectively.

Multiple Regression Analysis for variables Predicting EP, MR and TS expectancy variables.

| | EP(R=.34) | | MR (R=.31) | | TS (=44) | |
|-----------|--|---------|--|---------|--|---------|
| Variables | <i>t</i> | β | <i>t</i> | β | <i>t</i> | β |
| EE | 6.573** | .217 | 2.644** | .089 | 7.936** | .257 |
| PE | 4.298** | .144 | 2.481** | .084 | 3.568** | .115 |
| WG | 0.590 | .020 | 0.758 | .026 | 2.865** | .950 |
| EO | 1.552* | .048 | 2.439** | .076 | -0.231 | -.070 |
| PC | -1.136 | -.037 | 3.897** | .130 | 3.462** | .109 |
| EA | -0.200 | -.006 | -0.936 | -.28 | -2.218** | -.620 |
| | $R^2 = .11$, ** $p < .01$. * $p < .05$ | | $R^2 = .10$, ** $p < .01$. * $p < .05$ | | $R^2 = .20$, ** $p < .01$. * $p < .05$ | |
| | $F(6, 1541) = 34.27^{**}$ | | $F(6, 1541) = 27.52^{**}$ | | $F(6, 1541) = 61.98^{**}$ | |

Table 23: Regressions with EP, MR and TS

5.7.1 Second Regression Approach

When regression was conducted using expectancy variable as dependent (Miller & Grush, 1988) and behavior variable as independent, the results were similar to the ones obtained in the above table 23. Of interest was the findings that, $R = .60$ while $R^2 = .37$. More information was therefore, accounted for as compared to the previous result in the previous table 23. The validity of variance $F(6, 1542) = 147$ was highly significant with a p value of $p < .001$. Table 24 below illustrates that, EE ($t=11.29$), PE ($t=6.40$), WG ($t=2.55$) and PC ($t=3.4$) contributed significantly to variance in the expectancy dependent variable. Only EO with $t = 1.12$ and $p > .10$ contributed poorly to the model.

| Variable | EE | PE | WG | EO | PC | EA |
|------------------------|---------|---------|--------|-------|---------|-------|
| β (standardized) | .32 | .18 | .08 | .03 | .10 | .04 |
| T | 11.29 | 6.40 | 2.55 | 1.12 | 3.40 | 1.60 |
| Sig | **P<.01 | **P<.01 | *p<.05 | p>.10 | **p<.01 | p>.10 |

Table 24: Alternative regression method

An alternative procedure regressed the behavior variable against the expectancy variables. In this case, the dependent variables were the behavior variables and the independent were the expectancy variables.

Table 25 below illustrates further, how behavior variables cause variability in the each of the expectancy variables.

| Variables | PE (personal) | | EE (personal) | | WG (personal) | | EO (personal) | | PC (personal) | | EA (personal) | |
|--|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|
| | β | T | β | T | β | t | β | t | β | t | β | t |
| Effort performance Expectancy(EP) | 0.08 | 3.267** | .088 | 3.743* | .030 | 1.176 | .030 | 1.176 | .002 | .081 | - | -.218 |
| | | | | | | | | | | | .006 | |
| Interpersonal Performance Expectancy(IP) | 0.141 | 5.799** | .103 | 4.405** | .059 | 2.343** | .059 | 2.343** | .082 | 3.263** | .033 | 1.272 |
| Effort Learning Expectancy (EL) | 0.08 | 3.163** | .108 | 4.427** | .122 | 4.616** | .122 | 4.616** | .105 | 3.976** | .148 | 5.415** |

| | | | | | | | | | | | | |
|--|-------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|
| Leading Visibility Expectancy(LV) | 0.084 | 3.54** | .136 | 5.973** | .130 | 5.295** | .130 | 5.295** | .085 | 3.447** | .207 | 8.123** |
| Network Performance Expectancy(NP) | 0.001 | 0.043 | .043 | 1.822 | .045 | 1.762 | .045 | 1.762 | .132 | 5.172** | - | -1.44 |
| | | | | | | | | | | | .038 | |
| Internal-Recognition Expectancy(IR) | 0.023 | 0.954 | .023 | .967 | .027 | 1.049 | .027 | 1.049 | .007 | .268 | .031 | 1.171 |
| Mutual Reciprocity Expectancy (MR) | 0.07 | 2.851** | .040 | 1.712 | .056 | 2.194** | .056 | 2.194** | .099 | 3.860** | .029 | 1.114 |
| Network Learning Expectancy(NL) | 0.123 | 4.77 | .134 | 5.391** | .109 | 4.073** | .109 | 4.073** | .094 | 3.497** | .110 | 3.953** |
| Performance Outcome Expectancy(PO) | 0.102 | 3.975** | .073 | 2.974** | .016 | .580 | .016 | .580 | - | -.929 | .018 | .666 |
| | | | | | | | | | .025 | | | |
| Team Sustainability Expectancy(TS) | 0.152 | 5.991** | .199 | 8.180** | .169 | 6.421** | .169 | 6.421** | .170 | 6.484** | .054 | 1.973** |
| ** $p < .01$ $R=52, R^2=27, Adj R^2=27, F(10,1541)=57$ $R=57, R^2=33, Adj R^2=34, F(10,1541)=75$ $R=46, R^2=22, Adj R^2=21, F(10,1541)=42$ $R=40, R^2=16, Adj R^2=16, F(10,1541)=30$ $R=46, R^2=21, Adj R^2=21, F(10,1541)=41$ $R=39, R^2=16, Adj R^2=15, F(10,1541)=57$ | | | | | | | | | | | | |

Table 25: Combined regression results

It can be noted that, Internal Recognition (IR) had poor coefficients and insignificant t values throughout. Network Performance did not have significant values as well, except with Peer Comparison. The rest of the expectancy variables demonstrated that they generally contributed to the second order expectancy values (behavior variables). Table 26 illustrates the summarized results.

| | EP | IP | EL | LV | NP | IR | MR | NL | PO | TS |
|---------|------|------|------|------|------|-----|------|------|------|------|
| β | .037 | .08 | .11 | .13 | .04 | .02 | .06 | .11 | .033 | .15 |
| T | 1.54 | 3.24 | 4.37 | 5.28 | 1.52 | .91 | 2.32 | 4.29 | 1.31 | 5.91 |
| P | .663 | .066 | .00 | .13 | .21 | .48 | .07 | .00 | .31 | .00 |

Table 26: Summarized results of regression

However, when norm values were considered as controlling variables, the scores on IR and NP improved drastically to significant levels. This reveals that norms are important factors in influencing DE behavior.

5.7.2 Expectancy against Behavior for high Norms

In this part of regression analysis, expectancy was measured against behavior variables but only for those cases involving high norm values (Cases with scores greater than 3 (in class 4)

on a five point Likert scale). The results revealed R of 0.559, coefficient of determination of 0.312 and an $F(6, 1541) = 66.711$, indicating that relatively sufficient information was accounted for and an acceptable fit of the model. The t values were 7.145 for EE, 5.375 for PE and 2.091 for WG. EA had a t value of 2.435; EO recorded a t value of 0.545 while PC had 1.991. EO did not contribute significantly to the model while the rest had acceptable values of t at .01 significant levels. The VIF values were all less than 2, indicating substantially less likelihood of multi-collinearity occurrence. The tolerance values were also high with a minimum of 0.579 implying that much of the information in the model was accounted for.

5.7.3 Expectancy and Behavior controlling for low Norms

At this point, regression analysis was conducted with the aim of measuring the relationship between expectancy and the behavior variables but controlling for low norm values (values that were less than the average 3.00 on the Linker scale on the norms part of the instrument). The amount of variance accounted for was $R = 0.54$ and the coefficient of determination was $R^2 = 0.291$. These were slightly lower than the measurements obtained earlier for high norm values. The result shows that, respondents who perceived that their behavior was considered important and measured were more influenced by expectancies than those with low norm ratings were. This is also reflected in the t statistics, which are higher in the case of high norm values as compared to those with low norm values. EE had in this case a t -value of 7.187; PE had 3.359 and WG had 0.683. EO recorded a t -value of 0.770, PC had 2.494 and EA had -0.302. This finding seems to be consistent with other researchers who posited that norms contribute to shaping behavior (Lau & Shami, 1992; Napier & Gershenfeld, 1993). The VIF values for the lower norm variables were within acceptable range and the tolerance levels were significant for all the variables as shown in appendix F.

| Variable | R | R^2 | F | t -value < 1.96, ** $p < .01$ |
|-----------------|------|-------|--------|---------------------------------|
| High norm group | .559 | .312 | 66.711 | EO |
| Low norm group | .545 | .298 | 62.41 | WG, EO, EA |

Table 27: Regressions indicating the significance of norms

EE(7.15, 7.19), PE(5.38, 3.36), WG(2.01, .683), EO(.545, .770), PC(1.99, 2.49), EA(2.44, -.302). The first value in the parenthesis shows the t value for high norm and the second value indicate the t value for the low norm values.

Table 27 illustrates the results of the two regressions on responses that recorded high perception or tuned to norms and respondents with low norms as influencer factors in their discretionary behavior. The coefficient of determination R^2 was also higher on the group with high norm perception compared to the other group. The t statistics recorded insignificant values for EO in the high norm group and WG, EO, EA in the low norm group. This indicates the importance of norm factors in DE. An interesting result occurred with the PC component. It recorded a high t value for low norms compared to the low t value for high norm. This result did not follow the trend with the other variables and the occurrence was not expected.

5.7.4 Variability in Expectancy; Controlling for Mixed Norms

In this phase, expectancy variables were regressed against behavior and controlling for each norm variable. The lowest R -value was 0.60 and highest value was 0.61. The tables containing this information appear at appendix F.

| Variable (Norm) | R | R^2 | t values |
|-----------------|-----|-------|--------------------|
| EEw | .60 | .36 | EO=.78 EA=1.88 |
| Pew | .60 | .36 | EO=.83 EA=1.88 |
| WGw | .61 | .37 | EO=1.03 EA=2.00 |
| EOw | .61 | .37 | EO=1.30 EA=2.49 |
| PCw | .61 | .38 | EO=1.12 EA=2.11 |
| EAw | .60 | .38 | EO=.77 EA=2.32 |

Table 28: Changes in EO and EA with norms

From table 28 the values of R and the coefficient of determination R^2 are significant indicating the validity of the model and the variance accounted respectively. The equations are thus substantive and acceptable. The t statistics however, revealed that, of all the indicator variables, EO recorded lower values all less than the recommended 1.96. For the second variable EA, only the first two indicators variables had the t values of EEw (EA, 1.88) and PEw (EA, 1.82) less than the recommended 1.96 or 95% confidence level. In organizational studies, a confidence level of 95% is acceptable (Schumacker & Lomax, 2004).

5.7.5 Regression on Expectancy with High Norm Values

By conducting regression analyses on three subsets of DE variables DEpe, DEts and DElv as dependent variables and behavior variables as independent variables, but controlling for the variables in the first column, the results in the table 29 below were obtained. The coefficients of determination were all high, .91, .81 and .77 as listed in the first row. The model with WGw as controlling variable had the lowest beta and t values. The t values for WGw were insignificant in all the three models and therefore, not relevant.

| | DEpe($R^2 = .91$) | | DEts($R^2 = .81$) | | DElv($R^2 = .77$) | |
|-----|---------------------|---------|---------------------|---------|---------------------|---------|
| | T | β | T | β | T | β |
| EEw | 20.55 | .28 | 13.30 | .25 | 12.92 | .27 |
| Pew | 33.78 | .50 | 23.66 | .49 | 18.31 | .42 |
| WGw | 1.37 | .19 | 0.631 | .012 | 1.570 | .031 |
| EOw | -46.88 | -.66 | -30.64 | -.61 | -27.15 | -.60 |
| PCw | 26.72 | .35 | 20.80 | .38 | 13.61 | .28 |
| EAw | 24.65 | .31 | 12.97 | .222 | 17.59 | .33 |

Table 29: Partial DE with Norms

5.7.6 Final Correlation Table of DE Variables

Table 30 below illustrates the results of the final correlation analysis where expectance was moderately highly related to instrumentality at .25. It was interesting to find that affirmation did not relate highly or significantly with expectancy. Expectancy and affirmation showed a load factor of (.20) while valence and instrumentality revealed a significant relationship (.74). Another interesting result was the significant but negative relationships between valence and expectancy (.55) and a moderately significant value between affirmation and instrumentality (-.35).

| | Mean | S.d | Correlations | | | |
|-------------------|---------|---------|--------------|---------|--------|---|
| | | | 1 | 2 | 3 | 4 |
| Expectancy | 4.08776 | .46742 | 1 | | | |
| DesiredOutcome | 6.6319 | 1.68854 | .255** | 1 | | |
| AffirmationOfSelf | 2.5721 | .79169 | .051* | -.348** | 1 | |
| Valency | 5.9851 | 1.73229 | .204** | .742** | .552** | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

Table 30: Inter-construct correlations between DE variables

5.8 MULTILEVEL MODELING

Although regression analyses revealed important causal relationships among the underlying variables especially in terms of variance explanation, it does not deal with complex patterns of variability. For example, areas with nested sources of variability and mixed effects models in which some of the coefficients are assumed to be fixed while others are random. The sample data allowed for multilevel modelling of random effects in the data. Additionally, the data was segmented into few sectors and in particular, emphasis was placed on the six sectors on which motivational literature could at least be found. These included the Retail, Finance,

Education, Engineering, Mining and ICT. The results revealed that process oriented variables such as experience play an important role in determining the response variables which were expectancy, instrumentality, valence and self-affirmation. Table 31 shows the results with column one illustrating the Deviance (-2LL) variance of 4625.31 for Expectancy, 5413.28 for Instrumentality, 4755.19 for Valence and 5426.47 for Self-Affirmation. Column two presents the drop in the Deviance variance as experience factor is added to equation 5.4. In this column, the first values 1681.74, 5235.98, 3203.98 and 5249.59 indicate the drop from the values in the first column while the values in parenthesis present the difference without the error values. Column three shows a further drop in the Deviance (-2LL) value to 1680.70, 5235.98, 3203.27 and 5248.95 in that order. The values in parenthesis illustrate the difference in the drop but without the error value.

$$Y_{ij} = \beta_0 + \beta_1 \text{Experience}_{ij} + \beta_2 \text{Profession}_{ij} + m_{ij} + e_{ij} \dots\dots\dots 5.4.$$

j is the index for the groups (j= 1,.....,N)

i is the index for the individuals within the groups (i = 1,.....nj)

| Experience (Y_{ij}) | <i>Deviance (-2LL)</i> | <i>Base Model +Experience</i> | <i>Base Model +Experience +Profession</i> |
|------------------------------------|------------------------|-------------------------------|---|
| Expectancy | 4625.31 | 1681.74 (2943.60) | 1680.70 (1.100) |
| Instrumentality | 5413.28 | 5235.98 (177.30) | 5235.98 (0.000) |
| Valence | 4755.19 | 3203.98 (1551.91) | 3203.27 (0.110) |
| Self-affirmation | 5426.47 | 5249.59 (177.30) | 5248.95 (0.000) |

Table 31: Multilevel analysis

It was further observed that Gender and Sector did not influence significantly these variables at the unit (micro) level. However, it was realised that DE levels were different between sectors at the macro level. The results showed that, service oriented industries such as retail and finance yielded higher DE levels compared to product oriented industries such as Engineering and ICT. At the *macro-level*, the retail industry (Table 32) generally was high on expectancy, instrumentality, and self-affirmation and ultimately DE. This was followed by

mining, and then education. In terms of ‘experience’, self-efficacy and perceived difficulty play important roles. This could be because employees in the retail industry are more oriented to providing grounds for the stated expectancy variables. Finance and ICT were in the middle, while engineering was generally last on both DE and on the expectancy outcomes. An interesting and opposite result was that valence was highest in the engineering category, and lowest in the education and retail sectors.

Results of Scoring Recorded at the Macro-Level of Specified Industries

| Sector | <i>DE</i> | <i>Expectancy</i> | <i>Instrumentality</i> | <i>Valence</i> | <i>Affirmation</i> |
|---------------|-----------|-------------------|------------------------|----------------|--------------------|
| Mining | 0.887 | 4.0507 | 6.7841 | 2.5194 | 6.4136 |
| Finance | 0.838 | 4.0298 | 6.7791 | 2.5978 | 5.9165 |
| Engineering | 0.759 | 4.0295 | 6.5192 | 4.495 | 5.8658 |
| Education | 0.870 | 4.1400 | 6.9300 | 2.370 | 6.3700 |
| Retail | 0.888 | 4.1635 | 6.8118 | 2.490 | 6.1953 |
| ICT | 0.8228 | 4.0879 | 6.4771 | 2.754 | 5.6030 |

Table 32: Macro level multilevel analysis

5.9 HYPOTHESES TESTING

Hypothesis testing is a process of evaluating whether the assumptions made in the theoretical development do have significant supportive information. There are two parts or sets of hypotheses in this research and one essential model that were tested. The first set of hypotheses attempts to establish whether there could be a relationship between first level expectancies and second level expectancies (behavior) patterning to the data set. In other words, do the expectancy variables lead to discretionary behaviour?

1a Effort performance expectance

The effort performance expectance item had moderately low correlations with all the behavior variables with $\bar{r} = .23$. The t statistics of 1.54 at $p = .663$ was obtained in relation to the behavior variables. The null hypothesis 1a was accepted and the alternative accepted at .05 confidence level.

1b Interpersonal performance expectance

Interpersonal performance expectance item was moderately correlated with the behavior variable $\bar{r} = .26$. The t statistics was 3.2 at $p = .66$. The null hypothesis was rejected and the alternative accepted at .10 confidence level.

1c Effort learning expectancy

Effort learning expectancy correlated moderately with the behavior variables at $\bar{r} = .30$. The t statistic recorded a value of 4.4 at $p = .00$. The null hypothesis was therefore, rejected and the alternative accepted at .01 confidence level.

1d Leading visibility

Leading visibility correlated moderately low with the behavior variable at $\bar{r} = .25$. The t statistic was significant at 5.3 at $p = .13$. The null hypothesis was therefore, rejected and the alternative accepted at .5 confidence level.

1e Network performance expectancy

Network performance expectancy correlated moderately low with the behavior variable at $\bar{r} = .22$ and the t statistic against the behavior variable was $t = 1.52$ at $p = .21$. The null hypothesis was hence, accepted and the alternative rejected at .5 confidence level.

1f Internal recognition expectancy

Internal recognition expectancy correlated moderately low at $\bar{r} = .20$ and t statistics of .91 and $p = .48$. The null hypothesis was therefore, accepted and the alternative hypothesis rejected at .10 confidence level.

1g Mutual reciprocity

Mutual reciprocity moderately correlated at \bar{r} with the behavior variables. The regression analysis revealed a significant t value of 2.3 at $p=.07$. The null hypothesis was therefore, rejected and the alternative accepted at .10 confidence level.

1h Individual network learning expectancy

Individual network learning expectancy showed a moderately high correlation with the behavior variables at $\bar{r} = .31$ and a t value of 4.3 at $p=.00$. The null hypothesis was therefore, rejected and the alternative accepted at .01 confidence level.

1i Performance-outcome expectancy

Performance-outcome expectancy was moderately highly correlated with the behavior variable at $\bar{r} = .25$, t value of 1.31 and $p = .31$. The null hypothesis was therefore, accepted and the alternative rejected at .10 confidence level.

1j Team sustainability expectancy

Team sustainability expectancy correlated moderately high with the behavior variables at $\bar{r} = .31$, with a t statistic of 5.91 and $p=.00$. The null hypothesis was therefore, rejected and the alternative accepted at .01 confidence level.

The second set of hypothesis reveals that:

2a Effort expectancy construct

Effort expectancy construct was significantly related to expectancy with $t = 11$ at $p=.00$. The null hypothesis was therefore, rejected and the alternative accepted at $p<.01$.confidence level.

2b Performance expectancy construct

Performance expectancy construct was found to be related to expectancy at $t = 6.4$, $p=.00$. The null hypothesis was therefore, rejected and the alternative accepted at $p<.01$ confidence level.

2c Achievement of workplace goals

Achievement of workplace goals related significantly with expectancy at $t = 2.6$, $p = .011$. The null hypothesis was rejected and the alternative accepted at $p < .05$ confidence level.

2d Emotional orientation for desired out-come

Emotional orientation for desired out-come did not significantly relate to expectancy with $t = 1.12$, $p = .262$. The null hypothesis was therefore, accepted and the alternative rejected at .05 confidence level.

2e Positive comparison of expectancy with peers

Positive comparison of expectancy with peers was significantly related to expectancy with the t statistic at 3.4 and $p = .001$. The null hypothesis was therefore, rejected and the alternative accepted at .01 confidence level.

2f The Self is seen to have capacity for efficacious action

Self is seen to have capacity for efficacious action was not significantly related to expectancy with t of 1.6 and $p = .112$. The null hypothesis was therefore, accepted and the alternative rejected at .05 confidence level.

5.10 STRUCTURAL EQUATION MODELING

Structural equation modeling was conducted in order to test concepts in a more comprehensive manner and test construct validity and fit of the models. The main aim was to use the variables from the previous analyses that would best give a detailed but accurate description of the models. Lisrel software was used to run the models and the findings are recorded in parts. All the models used co-variance matrices as input data.

5.10.1 First DE Model on Individual, Interrelation and Behavior Factors

The first part illustrates the initial model which is aimed at testing the structural association between the two sets of Latent factors (IND and INT) and the Latent factor (INST). It further details the measurement equations between the latent variables and manifest variables. IND represents the individual expectancies while INT represents interpersonal expectancies as obtained in the first factor scoring table 17. INST stands for instrumentality or the behaviour latent variable. These are class one and three categories.

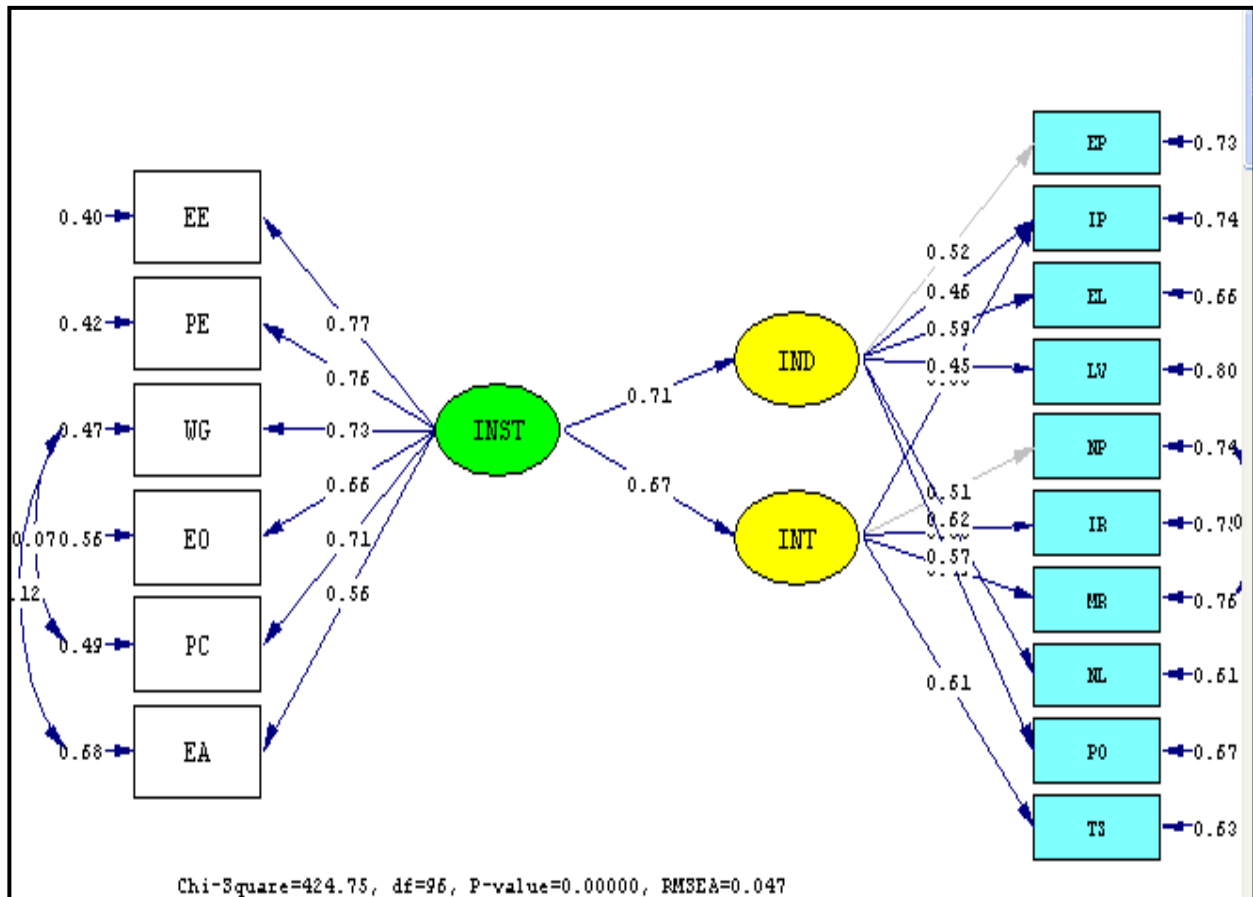


Figure 17: First Model

The measurement equations revealed that at the individual level (IND), expectancies are more influenced by Network Learning Expectancy (NL) with a load factor of .62 followed by Effort Learning Expectancy (EL) with a factor loading of .59. Peer Comparison had a load factor of .57. Visibility Expectancy (LV) was the lowest with a load factor of .45. The t values revealed that EL ($t = 15.16$), LV ($t = 12.91$), NL ($t = 15.53$) and PO ($t = 14.77$) were the most

statistically strongly linked to IND and, therefore, the most relevant. EP and IP recorded small *t* statistics of less than 1.96 and were, therefore, not relevant to this model.

At the networking level or interpersonal expectancy, Team Sustainability (TS) had the highest load factor of .61, followed by Network Performance Expectancy at .51 and Internal recognition at .46. The lowest was Mutual reciprocity at .49. The *t* values indicated that all of these variables were significant, with NP (13.17), IR (15.53), MR (10.01) and TS (13.73).

INST which represents instrumentality related significantly with all the indicator variables, with Effort Expectancy EE (.77) as highest load factor, followed by Performance Effort expectancy (.76) and the lowest was Efficacious Action at .56. The moderately low link between Work Group (WG) and Efficacious Action (EA) was another interesting result. The structural equations reveal that IND (personal that describes internal control of events) is the most determinant of INST (interpersonal which describes external control of events) at .71 (*t*= 16.21) followed by INT at .67 (*t*= 14.80). This suggests that, it is the individual expectancies that are more critical but that interpersonal expectancies also play an important role in discretionary behaviour.

The validity of both the measurement and the structural equations is listed in the table below. The first value indicates the R^2 , which is the significance of the equation and the *t* statistic is stated in parenthesis in table 33 below.

| Measurement Equations | INST(Behavior) | IND(expectancy) | INT(network expectancy) |
|-----------------------|----------------|-----------------|-------------------------|
| EP | | .26 (=====) | |
| IP | | | .23 (=====) |
| EL | | .36 (t=15.16) | |
| LV | | .21 (t=12.91) | |
| NP | | | .28 (t=13.17) |
| IR | | | .23 (t=15.53) |
| MR | | | .27 (t=12.51) |
| NL | | .39 (t=15.53) | |
| PO | | .32 (t=14.77) | |
| TS | | | .34 (t=13.73) |
| EE | .58 (t=33.76) | | |
| PE | .56 (t=32.87) | | |
| WG | .58 (t=33.68) | | |
| EO | .43 (t=27.54) | | |
| PC | .53 (t=31.79) | | |

| | | |
|-----------------------------|---------------|---------------|
| EA | .35 (t=24.23) | |
| Structural Equations | | |
| INST (Behavior) | .54 (t=16.24) | |
| IND (individual expectancy) | | .52 (t=14.80) |
| INT (network expectancy) | | |

Table 33: R² and t values of first model

The load factors in the measurement equations were relatively low with highest of .39 between NL and IND followed by EL and IND with a value of .36. The lowest value was recorded between LV and IND of .21 and the second lowest between IR and INT of .23. Although, the loadings were relatively low, the *t* values or statistics were highly significant, except for EP and IP. The manifest variables EP and IP were not significant to the initial model and hence, they both had negligible *t* values. This indicates that, these manifest variables are salient in influencing work behavior and the intended DE.

The goodness of fit statistics reviewed a Chi-square of 794 and Degrees of freedom of 102. The Root Mean Square (RMSEA) was .068 and significant *p* value of *p* < 0.001. *NFI* of .96, *CFI* of .96 and *GIF* of .94 were reported. These measures review that the model was acceptable but needed modification.

The modified model recorded improved measures with a Chi-square of 424, *df* = 96 with *p* < 0.001 and *RMSEA* of .047. The structural relationship IND and INST was .71 and that of INT and INST was .67. This revealed that unlike in the initial model individual expectancy is much more strongly related to behavior than network expectancy. The variables EP and NP did not record significant *t* values and, therefore, were not important to the overall model measurement.

The goodness of fit indices further revealed *NFI* = .976, *CFI* = .982 and *GFI* = .967. These are highly acceptable measures and suggest a good model.

5.10.2 Second Model Covering all the Variables in Theory

The second model represents a more comprehensive but complex scenario of the interrelations of all the indicator and latent variables in all the four classes, including norms. The factor loadings revealed that almost all the latent components, IND (Class one, Personal expectancies), INT (Class one interpersonal expectancies), INDW (Class two, organizational expectancies) and INSTW (Class four, organizational norms) were significant. The results are illustrated in figure 18 below.

The IND latent variable associated highest with Network Learning (NL) at .63 load factor followed by Performance Outcome (PO) at .57. The least was Leading Visibility (LV) at .46. At INT level, the highest score was Network Performance (NP) with a load factor of .53, followed by Mutual Reciprocity (MR) at .51. Both Internal recognition (IR) and Interpersonal Performance (IP) recorded .48. INDW latent variable recorded relatively high loader factors with NLW scoring the highest at .67, followed by POW at .66. ELW was third at .64 and TSW was fourth at .60. The lowest was LVW at .51 loader factor.

The highest loadings were recorded on INSTW, with the greatest value of .87 on Performance Expectance norm (PEW), followed by .86 on WGW and the least value of .78 on EAW.

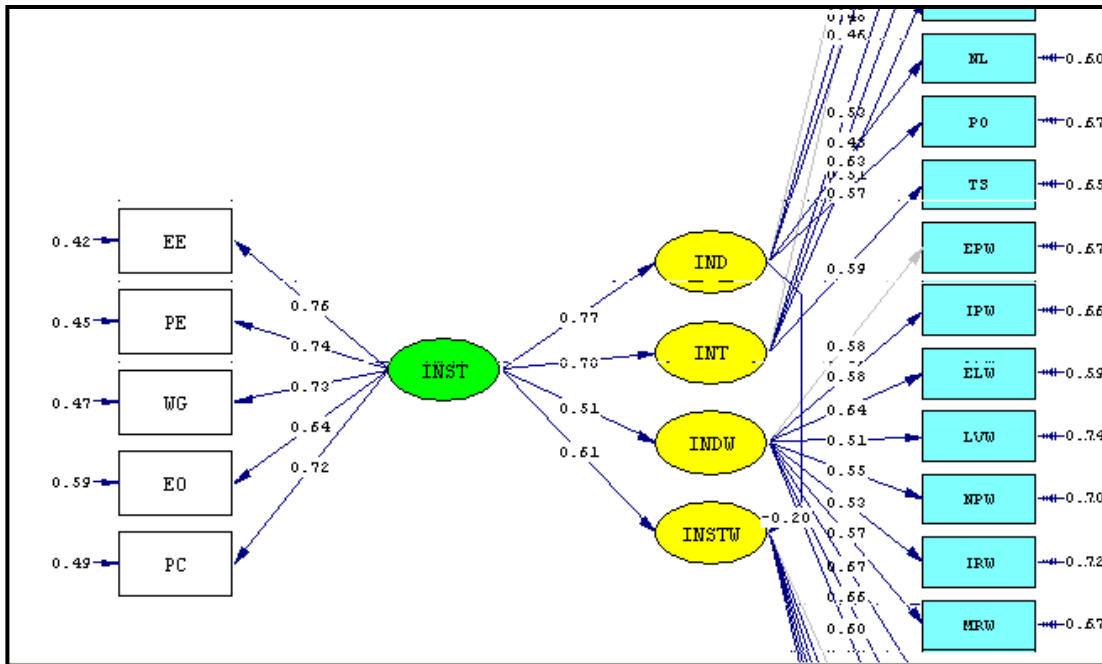


Figure 18: Second DE model

Structural Equations

The relationships between the latent variables revealed that IND (Individual Expectancies) and INST (behavior) was .77 and INT (Network Expectancies) and INST (behavior) was .78. This result reveals that when variables from classes 2 and 4 are included, INT become more closely related to INST. This is different from the results we got from figure 18 above. INSTW (Class 4 norms) loaded higher on INST (behaviour, class 3) compared to INDW (class 2, organizational expectancies). This seems to suggest that when measures are implemented, they seem to influence behavior more than when they are only perceived to be important. It was interesting to note a significant relationship between IND and INST with a load factor of -.20 and t value of -3.42. This seems to suggest that, norms moderately affect performance expectance, the first level of expectancies in a negative manner.

Table 34 illustrates the R^2 (significance and strength of the measurement) of the relationships in the model 18 above.

| Measurement Equation | IND | INST | INT | INDW | INSTW |
|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| EP | .26 (t=-----) | | | | |
| IP | .23 (t=-----) | | | | |
| EL | .35 (t = 15.30) | | | | |
| LV | .21 (t = 13.04) | | | | |
| NP | | | .28 (t = 13.63) | | |
| IR | | | .23 (t = 12.84) | | |
| MR | | | .26 (t = 13.29) | | |
| NL | .40 (t = 15.84) | | | | |
| PO | .33 (t = 15.08) | | | | |
| TS | | | .35 (t = 14.39) | | |
| EPW | | | | .33 (t=-----) | |
| IPW | | | | .34 (t = 17.99) | |
| ELW | | | | .41 (t = 19.18) | |
| LVW | | | | .26 (t = 16.41) | |
| NPW | | | | .30 (t = 17.23) | |
| IRW | | | | .28 (t = 16.71) | |
| MRW | | | | .33 (t = 17.75) | |
| NLW | | | | .46 (t = 19.91) | |
| POW | | | | .43 (t = 19.60) | |
| TSW | | | | .36 (t = 18.31) | |
| EEW | | | | | .68 (t = ----) |
| PEW | | | | | .75 (t = 41.70) |
| WGW | | | | | .75 (t = 41.49) |
| EOW | | | | | .73 (t = 40.87) |
| PCW | | | | | .67 (t = 38.32) |
| EAW | | | | | .60 (t = 35.40) |
| EE | | .58 (t = 33.62) | | | |
| PE | | .55 (t = 32.44) | | | |
| WG | | .53 (t = 31.72) | | | |
| EO | | .41 (t = 26.83) | | | |
| PC | | .52 (t = 31.05) | | | |
| Structural Equation | | | | | |
| IND | | .59 (t = 16.74) | | | |
| INT | | .61 (t = 15.81) | | | |
| INDW | | .26 (t = 15.05) | | | |
| INSTW | (t = -3.422) | .23 (t = 10.87) | | | |

Table 34: R² and t Values of Second Model

The goodness of fit index revealed that the chi-square was 4688 ($p < 0.001$) with Degrees of freedom of 429. *RMSEA* was 0.081 and *NFI* recorded .916 while *CFI* was .923. The *GFI* was .835.

These results were not very accurate for the model and therefore, modification was conducted. After modification, the results revealed that R^2 values increased in general, though minimally. However, the distinction between the load factors of the latent variables revealed that, IND and INT determine INST more than INDW and INSTW. It was also interesting to note that the link between IND and INSTW reduced considerably to .03. The t statistics between EEW and INST, EPW and INDW, PI and INT and EP and IND were insignificant and therefore, these variables did not contribute significantly to the model despite having considerably high load factors on the latent variables. This is shown in the table 34 above. The emerging relationships between the variables: INDW and INSTW, INDW and IND, IND and INT, INSTW and INDW, INT and INDW, IRW and IR, MRW and MR, POW and PO, PEW and EEW, EE and EOW, WG and WGW, EO and EOW and PC and PCW were of particular interest. This highlights the interrelations of the variables which suggest that, indeed, DE is multidimensional and may be caused by different factors that relate to these social constructs.

The goodness of fit indices revealed a reduction in the Chi-square (1102 and $p < .001$) with df of 440. The *RMSEA* was reported at .0486, well below the recommended .05. *NFI* was .97 while the *CFI* was .98 and finally, the *GFI* was .92. These are acceptable fit indices and therefore, demonstrate that the model is statistically valid.

5.10.3 Third set of Models detailing the four DE variables

The next sets of models are formulated to finally test the relationship between the traditional variables namely expectancy, instrumentality and valence and additionally the self-affirmation component. These models put everything into context about the DE construct. Figure 19 below illustrates the first outcome.

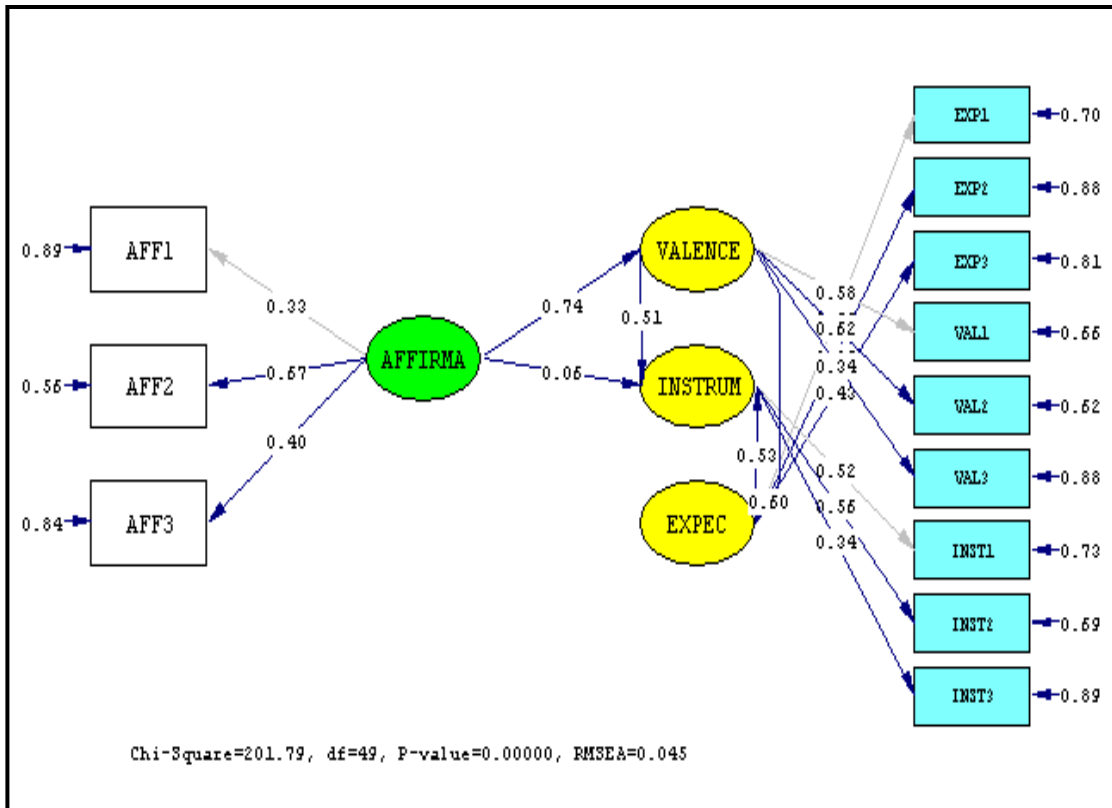


Figure 19: Third DE Model showing the four latent variables and the required indicator variables

In figure 19, the structural part of the model revealed significant causal effect between AFFIRMA (Affirmation) and VALENCE (.74), and between VALENCE and INSTRUM (Instrumentality) (.51). There was a further significant relationship between EXPEC (Expectancy) and INSTRUM (.53), and between EXPEC and VALENCE (.60). The relationship between AFFIRM and INSTRUM was however, negative and insignificant (-.06).

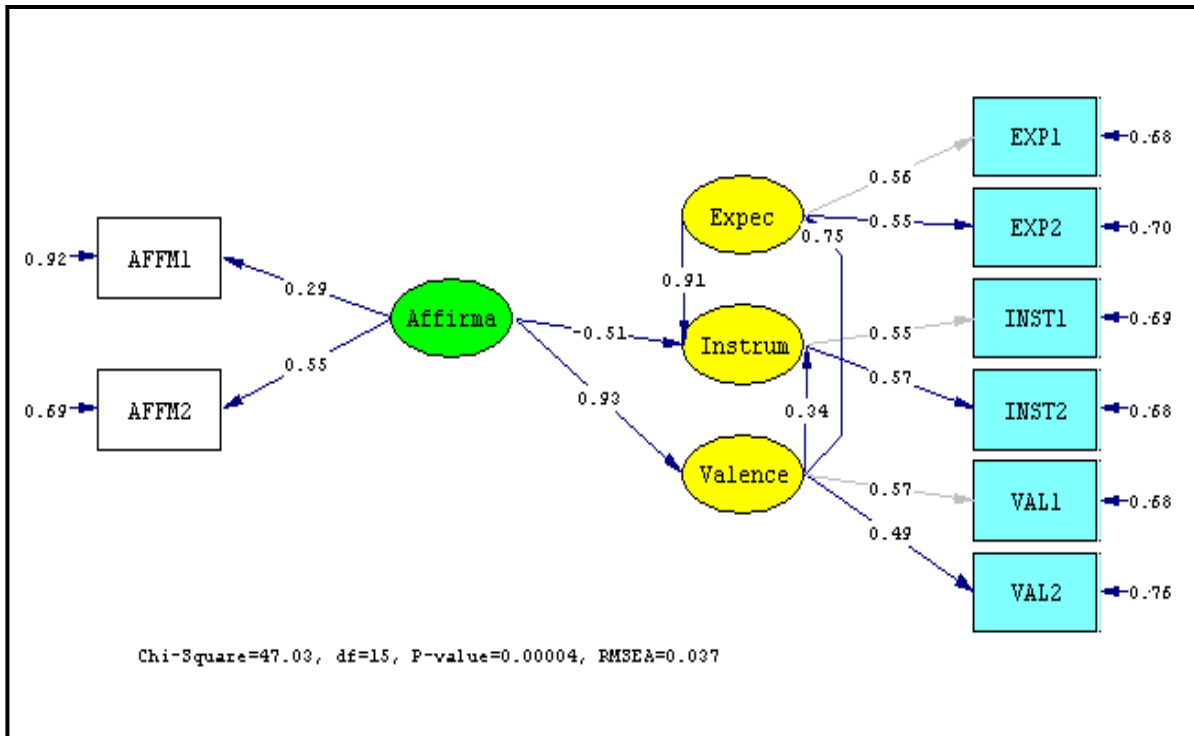


Figure 20: Fourth DE Model, reduced or refined form of the model figure 19

The load factors (standardised solutions) are generally significant with the minimum of .29 between AFM1 and Affirmation. Although the load factors between EXP1 and Expectancy, INST1 and Instrumentality and between VAL1 and Valence are all high, the relationship between these indicator variables and the latent variables are not significant to the entire model as indicated by their low $t < 1.96$ values.

| Measurement equation | AFFIRM | EXPEC | VALENCE | INSTRUM |
|----------------------|----------------|-----------------|-----------------|--------------------------------------|
| EXP1 (EP1) | | .30 (=====) | | |
| EXP2 (EP2) | | .12 (t = 10.28) | | |
| EXP3 (EE1) | | .19 (t = 8.94) | | |
| VAL1 (EO1) | | | .34 (=====) | |
| VAL2 (WG2) | | | .38 (t = 15.29) | |
| VAL3 (WG3) | | | .12 (t = 10.30) | |
| INST1 (PE3) | | | | .27 (=====) |
| INST2 (EE3) | | | | .31 (t = 14.15) |
| INST3 (PE4) | | | | .11 (t = 10.01) |
| AFF1 (EA1) | .11 (=====) | | | |
| AFF2 (PC3) | .44 (t = 8.95) | | | |
| AFF3 (PC4) | .16 (t = 8.16) | | | |
| Structural Equation | | | | |
| VALENCE | .54 (t = 8.43) | | | |
| INSTRUM | .008 (t = .63) | | .011 (t = 4.06) | |
| EXPEC | | | .36 (t = 10.20) | |
| INSTRUM | | .57 (t = 5.70) | + | .37 (t = 4.06). total R ² |
| | | .94 | | |

Table 35: R² and t values of third model

The fit indices revealed the Chi-square of 201 and $df = 49$ ($p < .001$) while the *RMSEA* was .045 which was less than the .05. The *NFI* was .94, *CFI* gave .96 and *GFI* was .98. These measurements indicate that the model fitted well although further modification could still be conducted. An important result is the link between Valence and Instrumentality. The .51 and .32 factor loading between expectance and instrumentality latent variables confirms other research findings in which .50 has been stated as the prominent value (Starke & Behling, 1973).

When the expectance variable of the first questionnaire is removed, the measurements improved with a Chi-square of 47, df 15 ($p < .001$) and the *RMSEA* gets to .037. It can be

noted also that, the link between Valence and Expectancy increases to .75 while that of Affirmation and Valence increases significantly to .93. Expectance and instrumentality load also increases to .91. The link between affirmation and instrumentality becomes -.51.

The t statistics on the other hand, reveal that affirmation and instrumentality are still negatively related in this model by the value of -.64, far greater than the recommended -1.96. Instrumentality and valence also show a t statistics of .41, also less than the recommended value, which is different from the previous model.

When Valence is set as a first level entity and the rest; Expectancy, Instrumentality and Affirmation put on the second level, the relationship between Valence and Affirmation remains the same at .93. This shows that Valence and Affirmation can be interchanged. However, the load value between Valence and Instrumentality reduces to -.20 and that of Expectancy and instrumentality is increased to .95. The load factor values between the manifest and the latent variables remained the same. The t values also remained the same as in the previous model.

The fit indices revealed a Chi-square of 48 and $df = 16$, while the *RMSEA* was .036. *NFI* was at .98, *CFI* recorded a value of .98 while *GFI* was at .99. These are acceptable model fit indices and therefore, the model is valid.

These results seem to suggest that Valence and Affirmation can be used interchangeably but this may depend on the network in which it is used. A population that is less affirmed may need affirmation attributes while one that is more affirmed may simply need valences to exercise DE. But, further research on using both the variables in one model showed that the model fitted well (April & Katoma, 2008). The results are presented below:

The last model in figure 21 was a second level structure relating the four variables to DE. The relationships between the manifest and latent variables were significant.

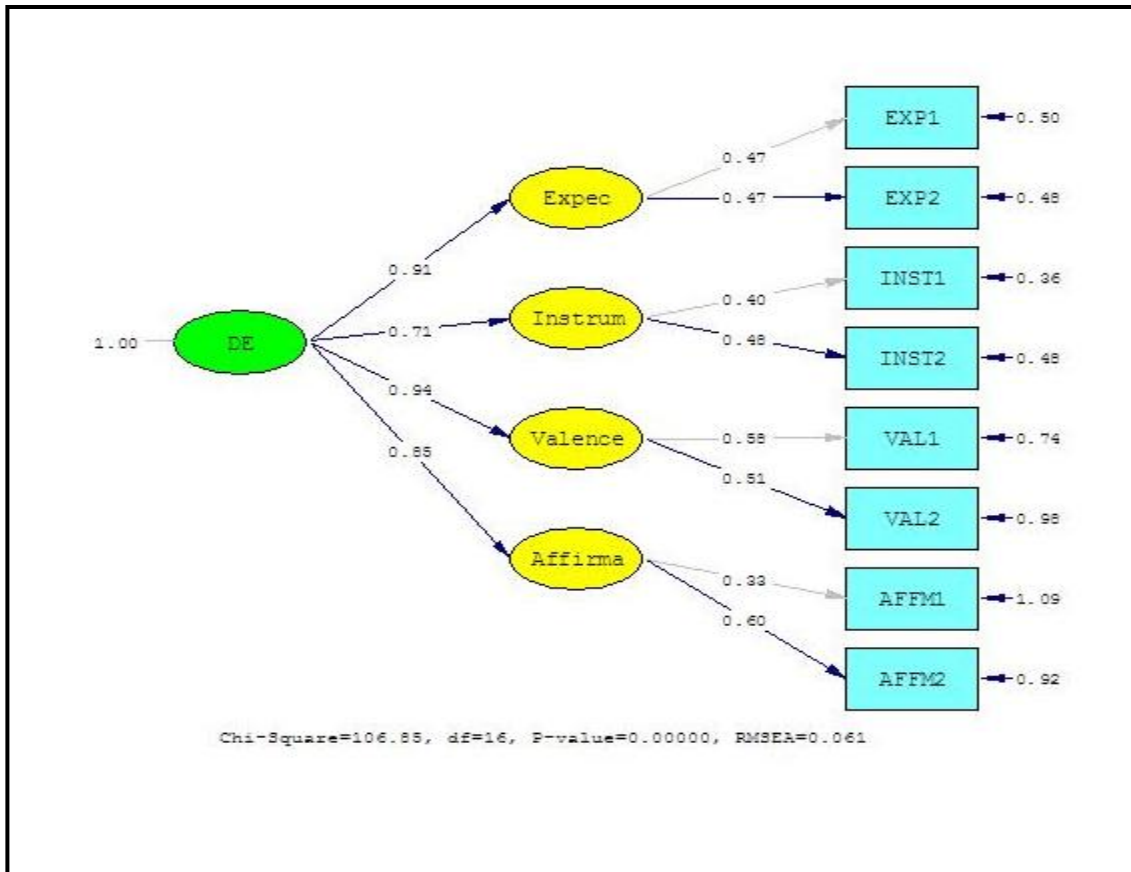


Figure 21: Second level model illustrating the full VIEA model

The final, second level model above revealed that valence was the most influencer of DE at .94, while expectancy is the second at .91. Affirmation of self was third at .85 and Instrumentality the last at .71. This result confirms the earlier statement that Valence and Expectancy are the core elements of DE, which other researchers adopt but leave out the instrumentality part. However, the high loading on the other two variables, Self-Affirmation and Expectancy underscores their importance. The fit indices included a chi-square of 106, degrees of freedom of 16, $p < .001$ and *RMSEA* of .061. After some modification, chi-square dropped to 102, *RMSEA* at .058. *NFI* was at .95, *CFI* at .95 and *GFI* at .98. These are acceptable fit indices.

5.11 SUMMARY

Chapter 5 illustrated the analysis of the research data in stages. The descriptive analysis provided some insights of the nature of the data such as experience, location of employees that were critical and further used in the advanced parts of the analyses. A brief explanation of the application of MLE was done in order to provide initial statistical models that depend on data distributions. Such strategies are important especially if experimentation is repeated to establish bounds and benchmarks.

Further analyses involving, correlation analysis was done to establish relationships between the underlying variables. When simple relationships were known, then advanced statistical methods including factor analysis, regression analysis and structural equation modeling were conducted. Factor analysis was used to establish the factor components or solutions of the data. This was aimed at reducing the variables to a small set of factors that could be easily managed. For example, the expectancy part of the data reduced to two factor solution at the personal level. Regression analyses were used to determine whether, certain factors (such as expectancy variables) were the causes of variances in the DE dependent variables. This was further used to test the hypothesis.

Structural equation was then conducted, to reveal the causal relationships between the latent variables namely, expectancy, instrumentality, valence and self-affirmation. The next chapter presents a detailed discussions of the findings.

CHAPTER 6: DISCUSSIONS

6.0 INTRODUCTION

Chapter 6 discusses the results from chapter 5 with respect to the earlier claims in the previous chapters. It then relates the importance of all the chapters to the current thinking on DE. The major findings of the research are stated and suggestions and recommendations for future research given.

6.1 DEDUCTION BY INFERENCE

The results from chapter 4 revealed that, the concept of DE is theoretically and empirically supported using the current sample of data. The initial analysis was centered on maximum likelihood estimation (MLE). As anticipated, the DE outcome followed a normal distribution. This could have been due to a large data sample size of 1548. Inferential statistics often rely on the assumption that the data are normally distributed (Schumacker & Lomax, 2004). Once the distribution function was established, MLE was easy to compute for critical or optimal values. The importance of MLE is that, results from the previous research apply as initial parameters in subsequent investigations. With data that has a known distribution, inferences can be obtained to enhance the explication of information. Moreover, in organizations where data capturing is continuous, repeated evaluation of MLE and inference can lead to benchmarking. For example, the lower and upper bounds on DE are achievable by monitoring the ranges or simply the convergence points.

MLE relates more effectively with the *accumulative aspect* of knowledge described in chapter three. Cumulative process provide continuity in observations of trends in the data. Because of knowledge building, artifacts accumulate as collective intelligence (Han & Hill, 2006).

Data and knowledge that are cumulative can be used just like in decision theory where, the parameters being estimated are, firstly unknown and secondly, not fixed. It is sensible to assume that θ is an unknown parameter that can take on different values in a space Θ called the state space or state of nature or available knowledge. The decision has a set of possible actions \hat{A} called the action space. The decision maker chooses an action a from \hat{A} (the set of all possible actions \hat{A}). The action is based on a random sample $X = (x_1, x_2, \dots, x_n)$ which has a probability distribution function (P.D.F or set of expectations) that depends on the parameter space Θ , the *state of nature*. The random values, in this case are simply the DE variables. The action is random and is given by $a = d(X)$ so that d maps the sample space (the set of all possible data values) onto the action space \hat{A} . Figure 16 illustrates this, and depicts the trends in DE. Figure 15, of chapter four demonstrated the distribution of variables around the DE variable. The decisions will however, incur a loss given by $l(\theta, d(X))$, which depends on both θ and $d(X)$. Computation of the loss function would further provide insight in the quality of DE, but this requires further research.

Relying on MLE alone, can however, limit the types of models one can estimate. First, sufficient statistics required to construct such models only exist for simple models with cluster specifics and distributions, which are generally exponential (Anderson, 1973; Chamberlain, 1980). Secondly, there is no distinction between latent variables and parameters; they all represent random quantities. Thirdly, MLE does not extend to interrelations between variables and relationships within and between clusters of data. In order to understand variable relationships, latent and nested aspects of DE, correlations, regressions, SEM models and random effect strategies are required.

6.2 CAUSES OF VARIABILITY IN DISCRETIONARY BEHAVIOR

6.2.1 Significance of Interpersonal Performance to DE

Interpersonal Personal (IP) expectancy derives from an understanding that network members believe and want to assist and develop others. IP related moderately high to both the other expectancy variables and behavior variables with $\bar{r} = .26$ significant at .01. This result means that, IP is an important variable that contributes highly to discretionary behavior. The causal contribution as established through hypothesis testing implies that, IP components are plausible areas of DE in professional networks. Berman & Katoma (2008) noted that, much of individual learning does not take place during the time of instruction, but rather through practical application. Interaction may take place both, in co-located environments and or virtual platforms in community of practice. This can reinforce pooling of resources and can bring together complimentary knowledge and expertise. It can further provoke future thoughts, ideas, and discussions leading to evaluations and corrections of possible decisions. Learning, within integrated workplaces such as professional networks develops largely from the works of Lave & Wenger (1991). Such experiences provide space for leaders to inspire their followers to attain desired outcomes through social influence (Spreitzers, 2006). This involves treating colleagues with respect and dignity, playing a meaningful role in something significant to the network and allowing the expression of emotions as it relates to performance and underperformance but without affecting others and the organization negatively. Chandler & Kram (2005) proposed, additionally mentoring processes in professional networks support for personal learning and development of careers. Network members should proactively seek out opportunities to assist fellow members in challenging projects, or help them to do something extra, beyond the minimal requirements of workplace performance.

6.2.2 Significance of Effort Learning Expectancy to DE

Effort Learning Expectancy (EL) was another construct apart from NL and TS that was significantly associated with the cause of variability in discretionary behavior at $p < .001$. EL correlated moderately with the rest of the items on the first instrument with $\bar{r} = .29$ and correlated moderately high with the behavior variable at $\bar{r} = .30$. In the regression equation, EL had a t value of 4.4, at $p < .001$. This indicates that EL is highly significant to discretionary behavior.

EL is a construct derived from the belief that, expended personal effort will have future, value-added learning benefits. EL is a creative based construct. Through EL, individuals should make use of the available communication tools (newsletters, intranet, internet, articles in business press, papers in academic journals, workshops, etc.) to raise personal awareness. Senge(1990) noted that, for an organization to be successful, people should learn new skills. This requires a well-integrated and networked work environment. Organizations with resourceful corporate memory in which knowledge accumulates and is shared, are likely to encourage EL activities. Individuals are also encouraged to involve themselves in activities that expose them to knowledge and learning, so that they can eventually develop their future careers within the current organization or outside of it.

Employees should expend personal energy and effort only in those things/processes/projects that have personal learning benefits for them either currently or in the future. This is a clear way of developing competencies. Secondly, efforts have to be tailored towards contribution or expenditure that matches the amount of learning employees receive in return from their network members (Vroom, 1967). EL expectancy encourages the knowledge worker notion. Since knowledge workers are workers who neither need nor desire close supervision, the EL construct fits them well. Just as any other employee needs recognition, Adams (1963) stresses that knowledge workers have a strong desire for personal recognition and reward for personal development. These increase their value in the marketplace. Drucker (1999) pointed out that, improving productivity of knowledge workers is one of the most important challenges for

companies that face transition from industrial economy to an economy based on information and knowledge.

6.2.3 Significance of Leading Visibility Expectancy to DE

Leading Visibility expectancy (LV) has a meaningful role for DE and requires powerful social networks. LV encourages that members position themselves in step with new trends and the cutting-edge, and be acknowledged as being knowledgeable and practicing at the forefront. Leading Visibility is highly associated with the paradigm aspect of knowledge concept. This aspect of knowledge is instantaneous and often premised on knowledge work. This category of knowledge workers typically move with few papers yet generate tremendous amount of knowledge (Tampoe, 2004). This kind of knowledge is even more difficult to account. Members, therefore, should purposefully explore unconventional ideas and different approaches that could eventually be important for their network to know. They must seek further to ensure transference of their knowledge and insights across, and outside the discipline boundaries of their organizations. Members should regularly subject their ideas to scrutiny from other non-network members; publish their work through journals or books.

Devenport (2003), however, noted that, there is no formal examination of the flow of knowledge work: for example, benchmarks and accountability do not exist for the cost and time that these activities consume. This raises the need to develop more rigorous measurements and distribution of such efforts. Another concern is the issue of context. Application of knowledge work should be within the context of organizational goals, so that identities of organizations remain in those enterprise clusters of networks under consideration. Nonetheless, by passing own knowledge, leaders in turn validate their career learning and accomplishments by giving back to the organization and profession at large (Wang & Odell, 2002).

6.2.4 Importance of Mutual Reciprocity to DE

Mutual reciprocity (MR) is an important construct in network associations. MR is based on the principle that network members should be seen to return directly, or indirectly, aid resources and/or friendship offered by another network member. Through mutual reciprocity, members feel obliged to enforce equal sharing of resources and aid within acceptable time frames. It also facilitates integration and alignment of members work with the goals of reciprocal members. It is also imperative that members seek to improve network processes and communication to achieve more effective network cooperation and higher levels of reciprocity among network members.

6.2.5 Individual Network Learning to DE

The highest correlation was between Performance-Outcome (PO) and Network Learning (NL) at a significant level of $p < .01$. This seems to suggest that, network learning is a precursor to the second expectancy level as expected. Senge (1990) attributed sustainable competitive advantage to organization learning. He pointed out that, the rate at which an organization learns might become the solely sustainable competitive advantage. Meyer (1996) enforces this viewpoint by suggesting that a single description of competence would be the integration of knowledge, skills and attributes to achieve a defined standard in a specific context. This viewpoint reaffirms that, in knowledge intensive economy the influence of learning is associated to performance out-comes and therefore, DE concepts relate with knowledge-based principles. The two constructs, PO and NL were further moderately associated to the behavior variables with NL, $\bar{r} = .33$ and PO, $\bar{r} = .27$ at $p < .01$ respectively indicate that NL and PO (accepted at .5 level of confidence) are influencer variables to the second level expectancy (behavior variables).

The regression analysis further confirmed this as a causal relationship as also illustrated in the hypothesis testing of the two constructs. This implies that professional networks can indeed use the knowledge advantage to foster performance and consequently DE. The extension of

Network learning allows modeling continuous dependent variables in social networks. In this view, a group of persons indicated by $1, \dots, F$, a *social network* is understood to be the patterns of pair wise relationship that can be considered in network analysis as binary (Wasserman & Faust, 1994). For example, a continuous variable Y_{fg} can be considered, that indicates a characteristic (e.g strength) of the directed relationship from actor f to g . This could be an outcome variable when each person in a closed group expresses his positive feeling ('like') towards each of the other persons on a scale of 1 to 10. Usually, outcomes of Y_{fg} are available only for $f \neq g$. Snijders and Kenny (1999) deal with this model. The important implications are: (1) Reciprocity; if f likes g , then it is highly likely that g will like f . (2) Popularity indicated by a person receiving high scores from others. (3) Activity and outgoingness indicated by a person giving high scores to others. These implications or effects are a model for binary-valued relations by (Holland & Leinhardt, 1981), in which a two-level structure formulates because of multi-level modeling.

6.2.6 Significance of Team Sustainability (TS) to DE

The second highest correlation was between Team Sustainability (TS) and Performance-Outcome at $p < .001$. The correlation between TS and behavior variables was generally moderately high at $\bar{r} = .31$, with the highest of .41 and the lowest of .19, all measured at .01 significant level. The causal effect of TS on DE behavior was demonstrated by a t value of 6 at $p < .001$ and a coefficient value of .15. Team sustainability implies the notion that a network member should focus on sustaining the network and its future. Requirements for this include, consulting with network members. In this way, a team will have better chances of finding solutions through sharing of technical knowledge (Pfeffer, 1998). Setting timetables for regular feedback and honest disclosure from network members to ascertain their perspectives and possible hindrances that could affect the network's future help to sustain the network. To new entrants, these activities would acquaint them faster and prepare them to participate in larger organizational commitments. Researchers assert that when a highly motivated new employee joins an organization, he or she would actively seek information from many sources and from social relationships to reduce his or her natural feelings of uncertainty (Atkinson &

Birch, 1978). This is of particular importance in virtual networks, which constitute global talents. Voluntary participation in online discussions is important for knowledge sharing and talent discovery, that are important for enhanced work performance. Providing consistent protection of the network members through ones authority, influence and persuasion of network members to contribute to the network further develops the network. In addition, network leaders must build a broad base of support for the network among stakeholders by identifying and positioning ideas to satisfy their needs, interest and concerns. It would also be reasonable to comment on further insights on the impact of expectancy on one's self esteem and productivity. In team-based workplace, instead of supervising, leaders want to be coaches in providing guidance and coordinating activities (Robbins,2000). This allows speed development of skills and unreservedly sharing of knowledge that encourages Discretionary Effort.

Any organization that supports team building must provide space for leadership growth in order to exploit the employee's inert potential. To sustain DE in teams, which is one of the ultimate goals, organizations should encourage auditing. Auditing of rewards, feedbacks, management practices, interaction patterns, organizational structure and culture should deliberate strategies to facilitate improvement and attainment of higher performance measures (DE).

The three expectancy variables TS, NL and EL among other items in this research revealed to account (causality) for most of the variability in discretionary behavior. In many aspects, the three are highly associated to knowledge elicitation. This confirms the earlier responses that in a knowledge intensive economy, expectancies are anticipated during the learning processes.

At the work level (class 2), inter-item correlations were generally high between (PO and NL), (PO and TS), (NL and TS), (NL and MR), (NL and EL), and (IP and EP). All correlations were between $r = .40$ and $r = .50$. Of all these variables, Network Learning (NL) had the strongest relationship with the rest. Team sustainability (TS), was the second. Further research on class 2 variables and total DE of an organization seem plausible. This is however, reserved for future research.

Correlations between personal (Class1, personal level) and organization perspective (Work level, Class 2) suggested that certain values of expectancy are congruent. In particular, Leading Visibility, Performance-Outcome, Team Sustainability and Effort Performance were the most significant. This implies that both employees and their organizations believed that individuals should be in step with new trends and the cutting edge, be knowledgeable and be practicing upfront. This however, may be reflected in the sample data, as it comprised mostly managers and specialists. Both individuals and organizations further shared the view that, what employees were doing could translate into certain outcomes. Team Sustainability and Performance Outcomes were associated, suggesting that sustaining a network team increases the perception that what individuals do could lead to certain outcomes.

6.2.7 The importance of Norms in Professional Networks

It was noted in table 30, that people who perceived that their behavior was considered relevant and measured by organizations (attuned to norms) would behave differently compared to those who did not. The levels of influence appear largely dependent on emotion orientation, peer comparison and efficacious actions constructs. While Emotional Orientation was the only item that scored low on the high norm measure, Emotional Orientation, Peer Comparison and Efficacious Actions scored low on the low norm (measure on people who are not highly attuned to norms). This implies that individual Peer Comparison is a criterion organizations can use to control behavior. Equity would therefore, cause employees to: 1. Change their own inputs and outputs. 2. Choose a different 'other' for comparison. 3. Distort their perception of their own or the other people's inputs or outputs (Adams, 1963). Peer Comparison in fact speaks of culture, beliefs and norms. Organizations can further use Peer Comparison as a description of competence in which integration of knowledge, skills and attitudes define standards in a specific context (Meyer, 1996). This is consistent with Adam's equity theory, which explains that employees compare their input and output with respect to their peers. The equity theory is the only theory of motivation that includes social components (Adams, 1963). Other important points around this factor include the employee's

belief that organizations are likely to enforce a network member's personal goals and align his needs with desired network outcomes so that his needs are gratified when achieved. Individuals would have their expectancies influenced by a belief that an organization shares reputation and successes of network members' with other networks that may be within or outside of the organization. This is highly necessary especially where cross collaboration is required, for example in professional networks that encourage virtual networking. Employees are also likely to be encouraged when, their network members match their effort in ensuring shared success in overcoming challenging tasks/projects or navigating areas not previously ventured.

It was interesting that while WG was significant at $t = 2.55$ at $p < .05$ of the overall sample, it was not significant with the low norm group. It was, nonetheless, highly significant with the high norm group. This indicates that, people attuned to norms are sensitive to work group requirements. These include 1. Exploring unconventional ideas and different work approaches important for the network. 2. Consistently elicitation members' viewpoints, integration, and alignment of work goals with the goals of reciprocal members. 3. Monitoring whether individual network members proactively seek project engagements and periods of projects, that suit their personal team styles.

Table 32, illustrated the results obtained from the regressed expectancy (dependent) variable and the behavior variables (as independent) but controlling for every norm measure. The results indicated that when norm values are considered, the variability in the independent variables become highly significant. A significant t value for WGw, EOw, PCw and EAw reveals that norm measures are a group concept. This seems to suggest that organizational norms are likely to influence work culture just as individual behavior does. Moreover, the variables EO and EA are the items that constitute Self-Affirmation as anticipated. Considerable research has demonstrated that attitudes and norms jointly account for significant portions of variance in many behaviors (Ajzen & Fishbein, 1973), and other factors, such as personality traits (Zanna, Olson, & Fazio, 1980). Prior experience influences behavior indirectly through effects on attitudes or norms (Fazio & Zanna, 1978).

By using multilevel modeling on discretionary constructs, April & Katoma (2009) further showed that experience was an influencing factor of DE at both the micro and macro levels in professional networks. It was also apparent that comprehensive SEM models were conducted to measure how important these norms were to DE. The next section demonstrates multilevel modeling and SEM.

6.3 CONTEXT AND MULTILEVEL MODELING

With multilevel modeling, the intention was to conduct a detailed investigation into the factors that affect discretionary processes. The main reason was to inquire more substantive information from the data composition. Because the data set consisted of layered structures according to clusters of employees in departments and sectors, it was apparent that DE could effectively be understood by looking at the unobserved heterogeneity in the data. The results revealed that the process oriented factors such as experience contributed, largely to the ways in which respondents arrived at their discretionary effort. This result seems to confirm Mayo's (2009) proposition that experience generates much of people's expertise and has value in itself. Mayo (2009) further noted that the context in which people learn their knowledge and skills could be as important as the expertise gained. Measurement of such experiences would include, 1. Time spent in a certain field. 2. Work experience in an organization with certain culture and values. 3. Having had certain responsibilities or accountability and having been in particular situations. Additionally, Fazio & Zanna (1978) posited that, prior experience influences behavior indirectly through effects on attitudes or norms.

Gender and the rest of the demographical variables did not significantly influence the DE process. Although there was no significant difference in DE at the micro level (individual), the macro (sector) level analysis revealed that differences did exist. Service oriented sectors such as Retail recorded high DE levels as compared to product-based industries such as Engineering. This could possibly be because engineers are more concerned with rewards,

such as bonuses. The structure of engineering firms could also be a contributing factor to the high valence values. Project managers may be very certain that they will get rewards on the completion of specific large-scale projects. It is, therefore, easier to be certain of a result in engineering than in service oriented, anthropocentric industries such as retail, which are highly fragmented and unpredictable. The high DE values in sectors such as education, retail and mining could also be attributed to short- and long-term training. For instance, education was the field with the most highly experienced employees. Engineering, retail, ICT and finance followed in that order. A further potential explanation of the disparities could be associated with management hierarchies; for example, retailers generally have flatter management hierarchies compared to engineering.

6.4 DEDUCTIONS FROM MODELING

Results of the models, revealed that NL, TS, MR, EL, and LV were the most significant indicator variables with the load factors of .62, .61, .57, .59 and .45 respectively. Thus, when all the variables were present in the model, NL, TS, MR, EL and LV remained the most important variables. This confirms the results of the hypothesis testing.

From the initial experimentation, in figure 17, the latent variables, IND, INT and INST provided an acceptable model. First, individual motivation (IND) or expectancies with a load factor of .71 were the strongest and significant influence of instrumentality (INST) as compared to interpersonal expectations (INT) at .67. This confirms many claims in literature that internal motivation largely determined expectancies and subsequently discretionary effort. In this research, however, it was interesting to note that, interpersonal expectancy, which was actually extrinsic motivation, played a significant role also. Further research however, can focus on this. In this combination, effort performance and network performance, despite having relatively high load factors were not significant. The suggestions from the output that NP and MR, on the motivation side, WG and PC, WG and EA, are related due to error co-variance were the other interesting findings. This seems to suggest that

workgroup values are sharable through peer comparison. Work groups can also be norms for practicing efficacious action as the link between WG and EA seem to suggest. Mutual Reciprocity relates to Network performance in what seems to explain that individuals who feel that if network members are returning the favor, the network as whole would be more productive.

From the second model, all the items from all the measurement instruments were included, to measure their relationship with discretionary behavior. From the structural point of view, intrinsic motivation (IND) and extrinsic motivation (INT) become equally important with a factor loader on behavior (INST) of .69. This suggests that when norms are considered, there is an increase in the extrinsic motivation. This is likely to be the case, especially if an organization shares the extrinsic values with employees. Heller (1996) pointed out that, no amount of reorganization or reshuffling can increase the long-term capabilities of business unless organizational values suit the people for a genuinely shared purpose (Heller, 1996). It is noted that, people with a public self-conscious, focus on external standards or norms and behave according to a social standard correct for the situation (Mitchell, 1976). In fact, many people feel motivated when others/organizations perceive them accurately, whether positive or negative (Wahba & Bridwell, 1967). The individual perspective of work expectancy (INDW) was the third most influencer of behavior (INST) and lastly the norm at .38 load factor. In this framework, all the indicator variables loaded significantly. Some error co-variances suggested by the output such as the error co-variance between LV and LVW, and IR and IRW (behavior and whether this particular behavior is deemed important for the company) were significant and interesting. This seems to suggest that certain behaviors are highly enforced if an organization measures and considers them important. Additional literature that point to the influence of experience and norms on behavior has been discussed by Ajzen & Fishbein, (1973), personality traits as behavior influencer by Zanna, Olson, & Fazio, (1980) and prior experience as indirect cause of attitudes or norms by Fazio & Zanna, (1978).

The final model details the relations between the reduced indicator variables and the latent, and associations among the latent variables. The load factors revealed acceptable relationships, which were easy to interpret, as there were no colinearity problems in the data prior to modeling. It was interesting to find out that the structural relations between the latent variables expectancy, instrumentality, valence and self-affirmation were significantly related, which supported part of the existing theories and further highlighted new knowledge. Affirmation of self was strongly related to valence and showed it was the most significant association in the framework with .93 load factor and a t value of 13.74 ($p < .001$). One of the reasons would be that, individuals are likely to set their valences better if they feel affirmed in the work they do. It also makes sense to ascertain that self-affirmation (self-image) is experience-based and therefore, has an influence in the way individuals make valence decisions. This finding supports the earlier claim that process oriented factors such as experience were some of the important influencers of the variances in the discretionary process, both at the micro and macro levels (April & Katoma, 2009). The second highest load factor was between expectancy and instrumentality with a value of .91, and a t value of 5 ($p < .001$). This high loading was as expected from the initial expectancy theory that purports that first level expectancy leads to the second level expectancies which is instrumentality (Lawler, 1994). The next highest significant value was between valence and expectance, of .75 and a t value of 10.20, ($p < .001$). This finding points to other important literature that valence would feed into expectancies as they help to propel individuals into actions once they have been set. This is however, on a positive valence otherwise; negative valence would not result in expending an effort. Although, there may be no direct link, between valence and expectancy, the cyclic nature of the Discretionary Effort process suggests that there could be a causal relationship between the two.

The other interesting result was the relation between valence and instrumentality, with a loading of .34, and a t value of 5.70 ($p < .001$). This seems to suggest that while it may not have been obvious that the two are significantly related, the current research context reveals this association. The cyclic nature of the DE process again may be some of the contributing factors to this observation.

Self-Affirmation and instrumentality, surprisingly, revealed a negative load factor of $-.51$, but an insignificant t value of $-.064$ ($p < .001$). This indicates that the link, despite being big by value is, however, insignificant. It was nonetheless, important to note the negative effect between these two variables. This seems to suggest that affirmation may inhibit individuals from directly expressing their discretionary behavior. They would rather use their affirmation in setting their valences. In knowledge dependent environments, people deem knowledge as their strength and therefore, may not want to easily or voluntarily share it with others or potential competitors. This could also be due to cognitive dissonance. Dissonance occurs when behavior is inconsistent with the self-concept (Steele, 1988; Thibodeau & Aronson, 1992). This result, however, needs further research.

Figure 22 illustrates the proposed model of the VIEA framework in pictorial version.

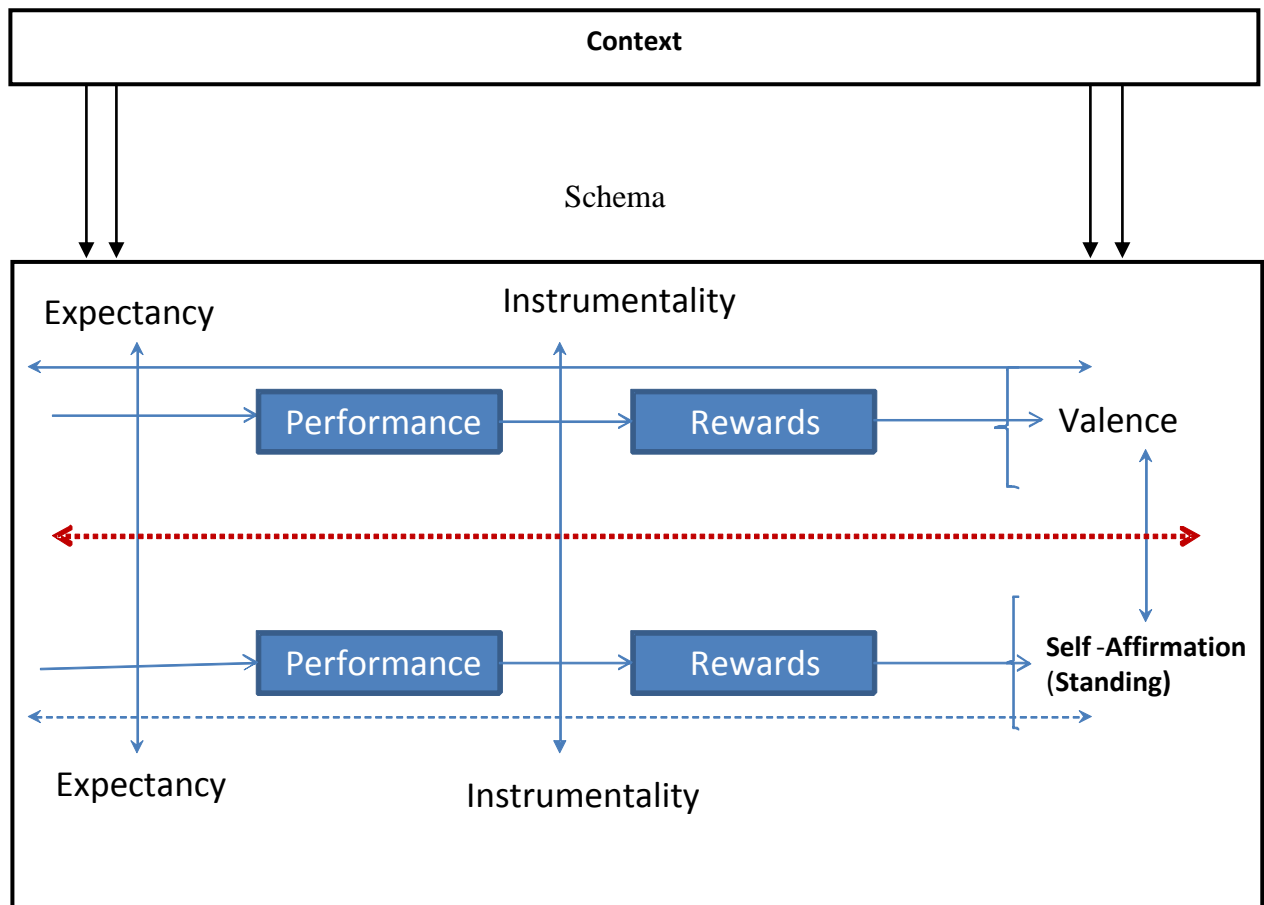


Figure 22: Proposed Model

In the proposed model figure 22, expectancies lead to instrumentalities, which are associated to rewards. The rewards relate to valences and/or affirmation of self in much more complex ways. Valence and Self-affirmation are highly related and key to DE. The dotted blue line indicates that while the relationships between Self-affirmation, Instrumentality and Expectancy are very complex, especially in complex environments, the relationship between Expectancy/Instrumentality and Self-Affirmation is not obvious. Although, initially it would have been anticipated that Self-affirmation will automatically lead to increased Instrumentality (Discretionary behavior), this may not be the case in highly integrated work environments such as professional networks and further research can look into this. The red dotted line represents the flow of external influence such as norms and factors such as experience. These are important elements of DE. It is logical to assert that context is a requirement when discussing DE in work landscapes that are rapidly changing and where expectations are obviously more difficult to glean. The schema indicates that, social contexts or environments influence DE indirectly and the effects can rapidly change. This further implies that, although expectancy-value theories have failed to specify the conditions that influence the interactive effects of expectancy (Kuhl, 1982, 1986), the current research provides strong evidence that regulatory focus through context (e.g situational variation) is an important determinant of this interaction. It is through context that causal attribution can be effectively determined as also noted by Feather (1982).

6.5 SUMMARY

Chapter 6 discussed the results of the current research. It commenced by explaining the deductive results through inference. The main aim was to demonstrate that DE information could be explicated using trends in the data. Through the trends, based on probability distribution functions, critical values may lead to benchmarking. The results of the regression analyses revealed the importance of those variables identified to be the cause of variability in discretionary behavior.

The results of the Multilevel data analysis illustrated part of the context aspect of DE in which nested variable influencing occurred. The effects of norm variables and lastly, the discussion of causal relationships among the four components of DE concluded chapter 6. The next chapter provides the conclusions emanating from the study.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.INTRODUCTION

DE is a set of energetic forces that originate from within as well as beyond an individual's being, to initiate work-related behavior (Pinder, 1994). This research has demonstrated that DE, a latent factor is useful in developing leadership related behaviors, which are highly needed in the present competitive economy. By developing DE around important business artifacts, such as service, knowledge and value creation concepts, the research was able to illustrate that DE relates and develops together with the current business tenets. This implies that critical business strategies that are drivers of performance are necessary to contextualize and meaningfully execute DE. In fact, for example, intangibles such as knowledge require context to maintain meaning and create business value. Cook & Hunsaker (2001) suggested that, organizational leaders and managers should seek to align the organization and its output with the changing environment by shifting resources and manipulating the employee's actions and behavior to fit that alignment. With some process implementation strategy, this is what DE should strive to address.

Although little has been measured, many researchers have noted the component of Self-Affirmation as an important factor in behavior based constructs (Aronson, 1969; Greenwald & Ronis, 1978; Thibodeau & Aronson, 1992). This is largely because self-image reduces dissonance in free-choice processes. It is even more critical in virtual professional networks, in which individual social circles are broader with less face-to-face interaction. Self-affirmation raises interpersonal performance expectancies, which encourage stronger work and collaborative relationships between employees. While traditional motivational theories dealt with individual needs, expectations, values and attitudes, the context of knowledge-based assets, service economy and multilevel strategies did not frequently feature as part of DE strategy. The current research has demonstrated these aspects and further looked at both individual and organizational perceptions of DE.

Because of the complexity of measuring DE, the current research first reviewed the early work on motivation, which was largely the content aspect of the expectancy theory. Secondly, the process aspect of DE was presented followed by context. Since DE builds out of probabilistic notions of attitudes, a rigorous mathematical process was necessary. The importance of this is that linking the content, process and context parts of the DE process becomes coherent. Once this is achieved, then deductive process and explication of information become easier. This research therefore, demonstrated that by defining DE variables as sets of information which can be captured through systems, expectations (knowledge sets) can be modified leading to discretionary behavior. This required clear understanding of value domains so that targeting of specific information is obtainable. Additionally, value domains further could help classify variables; especially in virtual networks where DE variables posted as text or objects can be accessed (be referenced) anytime. DE is measurable through written postings that members make in the corporate repository or memory. DE can be a process in which *tacit*¹⁰ knowledge converts into *explicit* knowledge that can be easily shared both synchronously and asynchronously in different knowledge clusters. Such processes would encourage leading visibility expectancies that require individuals to reach beyond their work confinements in search of knowledge. Knowledge working further implies that an individual would strive to sustain his or her team. Such attitudes are team sustainability expectancies.

7.1 IMPORTANCE OF MATHEMATICAL MODELING AND DE CONTEXT

This research, suggested that since the current business processes are dynamic and practical, rigorous mathematical and statistical methods are required to link concepts, storage, process and usage of DE variables. For that, discretionary variables underlying expectancy, valence, instrumentality and self-affirmation required context in the form of information sets called sigma algebras. Sigma algebras are sets on which measure theories apply. With sigma algebras, the process of capturing and treating DE variables becomes more specific as

¹⁰ Knowledge hidden in one's mind, which is not easily codified. Explicit knowledge is codified knowledge.

illustrated in value domains. With sigma algebras, probability computations, which are essential for expectancies are applicable. The use of maximum likelihood estimation and inference using the properties of probability distributions functions become obvious.

Trends are important processes of deriving meaningful conclusions out of data. An important application is in observing artifacts such as culture (values, norms and beliefs). Discretionary behavior that is rooted in culture is less random. It consists of distinct and logical behavior patterns that are easily identified and measured. For example, clusters of employees due to shared culture are possible patterns to glean. When Discretionary Effort is constructed using random knowledge which are changeable states of expectations (including changing attitudes), trends become more random and difficult to measure. This underscores the different methodological strategies employed in this research. Firstly, in organizations with strong cultural values, it is likely to trace and measure DE than in organizations with weak cultural values. Secondly, learning organizations create considerable value through knowledge and therefore, DE is measurable within the knowledge-based context. This is highly applicable to the respondents and organizations in the current research. Thirdly, it seems likely that service oriented industries such as retail, finance and ICT are less traditional and therefore, exhibit weak cultural value compared to sectors such as engineering, with highly standardized operations. It is much easier to change expectations in service industries compared to product-based industries. Service consumption often happens at the point of application unlike products or goods that have to be stored in most cases.

For companies that are transitioning from product to service orientation, DE can be beneficial in speeding up such a process. Services are a diverse group of economical and company activities. This makes them highly inclusive and open to innovation. This is useful in established service-oriented industries but less associated with the manufacturing of goods, mining and agriculture industries. Servitization is likely to increase in varying degrees throughout industries (General Electric, 1998; IBM, 1998). Services do not need inventory, unlike manufactured items that need wide distribution and are consumed with less direct interaction with the provider. They are also typically centered on provision of human value added in the form of labor, advice, managerial skill, training and intermediation; all necessary

for exercising DE. This is important to the effort learning expectancies, which assert that employees perceive that, whatever they were doing in terms of learning for instance would add value to the network in the near future. It further requires individuals to spend time effectively, only on things that add value to their network. An important point to note here is that, services tie to the creator in a latent manner, which significantly affects the marketing and value of the service-item. The DE of the creator of the service can therefore, if exercised wisely improve marketing and value of the service.

It has been noted that innovation in a wider sense is wide spread in many service sectors, for example, financial services, distribution and retail trade, communication services and software are among the most notable and active innovators (Hauknes, 1998). A good indication of this is the heavy investment in ICT by the aforementioned industries in quest to enhance competitiveness. On the contrary, innovation seems to be slow in those areas that are highly regulated, heavily rule bound (certain sport and games) and those industries in which physical labor is a prime component.

The finding that Retail and the other service-orientated industry such as finance had more DE compared to Engineering seems to explain that servitization reinforced DE. It was however, not clearly established why Mining, a more product industry had almost the same DE compared to service oriented organizations such as education. This may indicate how the mining industries have transformed towards service orientation.

Knowledge was another central characteristic of this research. Almost all the accepted hypotheses were knowledge based constructs. This was mainly due to the concept of integrated workplaces such as professional networks and the response group of mostly managers and specialists. This category of people requires work environments that are highly knowledge dependent, with collaborative and pro-social platforms. DE as an organizational citizenship behavior construct (Organ, 1990) can be highly attributed to knowledge. In addition, since DE variables are attitudes, they are learned. Leaders must therefore, strive to

understand employee attitudes and help to shape or mentor them to create competencies. This should involve:

1. Knowing of what is expected
2. Practicing or visualizing how to respond to customers/peers/organizational challenges.
3. Responding to customers/peers requests and needs.
4. Evaluating the results using customer/peer/organizational data, recognition and other feedback.
5. It is imperative to repeat the processes 1 through to 4 for sustained competency development.

Some of the important points around knowledge and DE are: A. Without knowledge and learning processes of an organization, the social system would stale. B. Knowledge is a relation between individuals and reality of achieving what they aim at. C. Knowledge is the potential link between DE variables. D. The rationale for the interdependence of DE variables is through learning and understanding of the self and the systems at large. E. Through knowledge sets, conditional expectations are applicable. This is evident in the tendency by people to remember most readily that which support their beliefs.

A learning organization according to Garvin (1993) is one that is skilled at creating, acquiring, and transferring knowledge, and modifying its behavior to reflect new knowledge and insights. Senge(1990) further suggested that, the rate at which an organization learns might become the only sustainable competitive advantage. This means that learning organizations need a population of knowledge workers to create knowledge. Individuals should further, be given freedom to act and their objectives should include measures on knowledge creation and dissemination. Work assignments should in addition, be allocated with learning in mind. This may require placing particular people on projects, working with leading edge technology or with leading experts in that area. Training needs should be identified through, the gaps in skills and knowledge between current and desired performance (Garvin, 1993). Ultimately, a collective genius of the organization in which DE is self-generating is what organizations should strive to achieve.

In terms of workgroups or emergent work clusters, leadership qualities must be developed accordingly, which should include: 1. Identifying training for these specific groups or teams. 2. Pooling resources together and finding solutions through sharing of technical knowledge (Pfeffer, 1998). 3. Sharing experiences and increased collective commitment to organizational goals (Mohrman, Cohen, 1995). 4. Identifying shared values and measuring how they affect a team's performance. In all these, it is important to note, as Mayo (2009) posited that the context gives meaning to the figures.

Results further showed that, Maslow's (1968) hierarchy of needs, particularly, the social aspect of the needs pyramid played a much more significant role in the current research. This is, attributed to the need for the process requirement of DE and the knowledge economy due to increased technology and communication systems. This may further suggest that, the psychological and safety needs were less important. Basic needs such water; food and safety needs such as protection from physical and emotional harm were less important. Needs based on self-esteem (such as respect, recognition) and self-actualization (personal growth that extends beyond self-interest) had taken precedence. This is supported by constructs such as interpersonal performance expectancies that recognize networking and sharing as important methods to personal growth. This further encourages mutual reciprocity expectancies through which employees return favor to their network.

It is highly likely that, in integrated and dynamic environments such as professional networks, elements leading to dissatisfaction (Herzberg, 1987) may emerge in elusive ways. For example, the relationship between affirmation and instrumentality could be negative because of unforeseen dissatisfaction elements. It can also mean that, self-affirmation is more of a reinforcement theory (Skinner, 1974), and hence not motivational because it does not arouse behavior. Nevertheless, reinforcement provides a powerful way of understanding human behavior and is always included in chapters on motivation. Without self-affirmation, individual preferences are likely to be suppressed. For example, the negative value between affirmation and behavior is synonymous to negative reinforcement. Just as employees are

usually criticized for reporting to work late, they are more likely to arrive at work on time if they found that, they will avoid criticism when they did so. The negative behavior can be withheld when the employee behaves in a manner that is desired by the manager (Skinner, 1970), but this is detrimental to DE as it is a highly personal behavior construct.

7.2 THE IMPORTANCE OF SELF-AFFIRMATION IN PROFESSIONAL NETWORKS

Discretionary Effort or organization citizenship behavior is a construct based on employees' good will in improving performance. In a dynamic economy, this requires considering different dimensions of performance enhancers and important business aims such as value creation. The current research, by incorporating the self-affirmation construct in the traditional expectancy model (VIE), has demonstrated that the DE framework is scalable and plausible. Self-Affirmation is, strictly speaking a social construct. Affirming of oneself or self-image depends on suggested artifacts such as emotional orientation and efficacious actions, which are highly needed in integrated workplaces such as professional networks. As work environments become highly integrated due to changing the work landscape including the rapid expansions in virtual networks, the component of self-affirmation is likely to play an increasingly significant role. Since discretionary effort builds from attitudes, self-affirmation encourages individuals to re-establish themselves when challenged.

Attitudinal behaviors are causes for dissonance. Dissonance occurs when intent and action diverge. Self-affirmation can help reduce this dissonance by repeatedly exercising efficacious actions EA and changing emotional orientation EO. In the analysis, chapter 5, on regression, it was reported that, individuals with high norm values or those attuned to norms had significant EA. This was however, not the case for people with low norm values. This highlights further, that discretionary behavior is interlinked to efficacious actions that involve, a) knowledge transfer and learning, b) scrutiny of network members' behavior, attitudes and expectations, c) feed- back that facilitates learning and hence affirmation, etc. It is thus, interesting to note that if discretionary behavior is considered and measured in organizations; it would give individuals knowledge of their value in the workplace and would lead to

exercising DE. This implies that, discretionary effort can be a self-generating force when employees continue to affirm. The trade-off between what they become from what they were is an increase in knowledge and that is what creates value and fulfils expectations. This research thus posits that the affirmation component is highly necessary in a contextualized work environment and that self-affirmation can help derive clear understanding of the need to improve the self- image and gain in performance.

7.3 IMPORTANCE OF EXPERIENCE TO DE

Through a multilevel analysis strategy, the testing of demographical variables revealed experience as an important factor in DE development. Experience is associated with situations, opportunities and reinforcement of beliefs and attitudes. Self-Image development cannot be complete without attaining some level of experience. This however, requires context so that what is learned can be contained and traced. This view concurs with the findings of Rotter (1954), who asserted that social learning is mostly about three antecedents, namely, 1. expectancies regarding occurrence of specific outcomes, 2. reinforcement of values 3. the psychological situation, which presents the possible courses of behavior. Starkey, Tempest & Mckinlay (2004) noted that the locus of innovation is no longer within the firm but in communities of members in an opportunity arena.

Through experience, value creation is possible. O'Reilly (1991) defines value as a stable but changeable set of expectations. Value is what one acts to gain or keep (Rand, 1964). It is therefore, important to note that part of value creation is to exploit experiences that create competencies in organizations. While the level of experience in many other sectors were similar, the retail and financial service sectors which are service oriented had higher levels of DE compared to product oriented sectors such as engineering. This seems to confirm the finding that, sectors with high interpersonal interactions promote discretionary behavior, thereby creating value. Research, as noted before, suggests that, the service industry is more innovative and value creating compared to a product-based industry. This seems to confirm why most companies are redefining themselves by becoming more service oriented. In sectors such as retail, it is however, much easier to set expectations because tasks are

generally easier and less risky compared to industries such as engineering. Creating value through organizational citizenship behavior such as DE may just depend on good customer services such as courtesy. Other value creation methods include workshops, training, and courses, which help employees, discover inner personal values and value congruence through interactions. This may further entail that, the service-based industries have flatter hierarchical structures, which encourage broader decision-making compared to the product-based industries. Nevertheless, it may also mean that, in service-oriented industries, recruitment prefers people who are highly motivated and are thus, likely to exercise DE.

The current research revealed that the DE process is knowledge-based and therefore, any attempts to measure DE require a comprehensive understanding of the underlying variables. It revealed further that, these variables are highly ingrained in knowledge instances, which are sets of expectations and thus, DE attains an epistemic status. What remains is then to identify who qualifies knowledge as valid in the networks? This in turn requires growing special leaders, to identify the needs of the network members and providing motivational grounds to easily share knowledge and exercise DE in the most effective ways. One way is to provide each group with a knowledge worker or people with expertise to influence the groups. The other way is to provide specific coaching, based on the level of DE in different groups and or departments and allow leaders to emerge. In complex environments, norms are necessary and can facilitate the knowledge justification process. Through norms, organizations establish cultures, attitudes and values. Although coaching needs to target specific individuals, informal learning through interaction is highly critical to the DE propagation. In virtual networks, effective knowledge management systems such as community of practice COP, to capture deep rooted knowledge (Tacit) through codification (Explicit knowledge) are necessary.

This research has determined that, in pro-social environments important DE constructs include; interpersonal performance, effort learning, leading visibility, mutual reciprocity, network learning and team sustainability. All these describe pro-social behavior and they

largely describe the social epistemology. Professional networks should therefore, be conceived with sharing, and features that facilitate knowledge transfer. Such environments should facilitate both tacit and explicit knowledge sharing. Communities are possible, in which DE is self-generating and value creation reinforced through learning and interaction. It is through learning that individuals can affirm and reduce cognitive dissonance. This means that both the paradigm and cumulative knowledge concepts must be encouraged. By achieving this, individuals with less experience and exposure can utilize cumulative knowledge to exercise their DE. Those with more experience and knowledge, for example knowledge workers, can rely more on the paradigm aspect to exercise their DE's. DE is likely to be more meaningful and accurate when exercised between individuals who share values. This is because the executor and the receiver are likely to understand the context and the exact intent of the efforts. On the other hand, when shared between individuals with incongruent values, the trade off can create more value as long as the receiver understands the context. Value congruency can lead to stabilization of work expectations and trust. By improving proximity through networks, emergent groups and alliances based on shared values are likely to form.

This research further realized that, instead of only focusing on the entire DE, employers should further explore individual DE components. In fact, developing leadership characteristics include coaching employees at discretionary variable levels (April & Katoma, 2009). For example, while expectancy, instrumentality and self-affirmation were low in the engineering sector compared to the rest of the sectors, valence was highest. This could imply that engineers were more certain of rewards such as bonuses on accomplishment of tasks. Therefore, engineers are more confident and certain in setting their valences. The strong relationship between valence and self-affirmation may then suggest that, engineers are more self-affirmed (image building) compared to the other industries in this study. However, independent scores on self-affirmation did not show this result. This may suggest that emotion orientation (EO), a valence attribute, as shown in the analysis in chapter 4 is highly dependent on intervening variables such as norms.

7.4 THE ESSENCE OF CONTEXT AND DE

Lastly, the current research posits that, to realize a meaningful DE framework, context is critical. Context, as Hymes (1972) noted is key to, for example, learning a foreign language. He posited that, the best way to learn a new language is by immersing oneself in the community that uses the language. In this way, the learner is able to pick up the social context of the language. Therefore, the key to learning a language is to start with context and then the language. By presenting employees with a broad context of how their skills fit into the workplace, would help them adapt and set expectations effectively. Context, in this research involves defining and considering considerable business factors that currently determine business performance. Such variables include artifacts such as knowledge, networks and systems that facilitate interaction among individuals. It further includes diverse participants according to sector, profession and experience. This is different from research that uses within-subject decision-making or fictitious scenarios to measure DE. It is also different from research that has targeted specific groups but fails to consider the importance of intervening variables that currently determine performance. It was, therefore, the intent of this research to demonstrate that a framework premised on current performance drivers be explored, thereby providing an important basis for the current and future DE investigations.

The modeling part demonstrated the relationships of DE variables and measuring their causal relationships. This provided some insights on the need to investigate these relationships to strengthen DE processes. Overall, the final model provided acceptable measures. This means that the four variables in the VIEA model were important and appropriately used to measure DE.

Research Question one

Research question one enquired whether integrated work environment could be appropriate premise for investigating DE. It further questions the type of expectancy models needed for this environment. This research has largely addressed the question, firstly by suggesting models with clarity of implementation and probability theories associated with DE. It also highlights the link between theory and practice as also suggested in the earlier chapter's one

and two. By suggesting linkages between the underlying variables in a systematic way through the use of sigma algebras, the process aspects of DE can be effectively realized. At the same time, the context to which DE operates can be determined to a large extent. This demonstrates that integrated work environments are appropriate DE premises. Hence, the suggested models can be a test-bed for such investigations. The use of mathematical constructs to link variables provides a logical sense of not only initiating process in DE but a more general way of presenting a model-system in which DE can be constructed and exercised. Henceforth an inherent link between the communities and the systems that create these communities can be established. This implies that DE can be seen to be generated continually and may be interpreted continuously. Such a process would underscore the fundamental theories of expectancy as a process, as noted by Vroom(1964). This, to large a extent answers research question one; that integrated work environments are indeed appropriate premises for investigating DE in a comprehensive way. The integration of concepts and captured variables, in fact can reduce fragmentation of theories as also highlighted by Pfeffer(1993).

Research Question two

Research question two was about the possibilities of measures capable of facilitating the conversion of concepts into process. It has to be noted that the suggested measures on DE variables were developed through well-tested mathematical and statistical theories. Although different opinions can arise on implementation strategies, the main concepts are, however, captured through these mathematical models, which can render concepts to process. Since DE in integrated workplaces is affected by many variables, the suggested measures are likely to meet some of the anticipated outcomes and requirements that can help translate concepts into practice. This research has demonstrated that DE variables can be captured in systems in form of pieces of expressed knowledge that includes sharing of ideas through discussion forums and online coaching. When knowledge is interpreted systematically, construction of sound DE would naturally follow. This research, to some extent has answered the research question two about the possibilities of measures capable of facilitating the conversion of concepts into process.

Research Question 3

Lastly, this research has exploited the latest business concepts such as knowledge –based economy, services as a tool for value creation. These were used as business strategies that could enhance DE. Expectations were explained in different ways through which the envisaged hypotheses arose. This research has demonstrated that such undertakings can help to explain latest business concepts in defining and measuring DE. On almost all the analyses strategies employed in this research, the outcomes were similar and to some extent confirmed the earlier claims that the underlying variables can help measure DE in integrated environments.

With the knowledge based variables coming out more prominent in the hypothesis testing, this research posits that to encourage DE, a great deal of effort has to be invested in strengthening knowledge generation, knowledge sharing and knowledge dispersion practices. This, however, largely depend on erecting concrete systems through which knowledge should flow. The type and quality of knowledge should in turn be measured to ensure that DE is based on sound decisions.

It has to be noted that the primary aim of this research was to suggest a model for discretionary effort. This research used expectance variables, but including the self-affirmation concept to taste the validity of the model. The results showed that, the employed statistical and mathematical measures can be effective in modeling discretionary effort. Further, the results confirmed other findings, for example that in integrated environments people are more concerned about high level needs.

7.5 SUMMARY

Discretionary Effort, a derivative of performance requires ability, skill and expertise. At an organization level, this revolves around competencies. DE further requires motivation, which is a persistent urge to deliver and encourage innovation. At the organization level, motivation revolves around achievement-orientation, culture, and certain work climates. Clarity of expectations is another important variable of motivation, which emphasises job description, goals, objectives, strategies and vision. At an organization level, this requires open systems with the involvement of all stakeholders (Arthur, Thompson & Strickland, 1998). It also

requires provision of resources and opportunities such as chance to express itself. If the DE of an employee is lower (deficient) than desired, then simple evaluation is needed. Firstly, it requires checking if there is a good understanding of the expected results, which relates to the evaluation of performance. If this is not a problem, then, motivational issues such as availability of resources need evaluation.

To enhance DE, motivational levels have to be first increased. This would include evaluation of relationships between: A). Effort expended and perceived levels of performance. B). Expectations that rewards (desired outcomes) will be related to performance. C). Expectations, that (desired outcomes) are available. D). Expectations that the effort applied will be related to context so that results are optimal.

DE levels can however, also change and can be counterproductive if used out of *context*. Gain in performance (DE) measures can be in context of how much an individual or a group contributes to the *knowledge value* of the organization. This may include creation of new knowledge, *knowledge dissemination*, *creative outcomes*, meeting targets and providing solutions to critical problems that contribute to customer benefit.

According to the Accel (2006), an employee's optimal performance or DE is facilitated by a variety of procedures and tools. These include trust and recognition, trust and respect, job enrichment, good communication, financial incentives, removal of organizational barriers that impede performance, provision of optimal learning and provision of tools that allow employees to work efficiently.

7.6 RECOMMENDATIONS

Organizational leaders should strive to understand expectations of employees. Since expectations change and hence, the value that individuals place on these expectations, business leaders should strive to identify the most critical values and align these with rewards. One way of achieving this is by reliabilism. Reliabilism is an epistemic method, which asserts that people attach a certainty value on the information they possess (Golman, 1999).

This facilitates individuals to qualify certain information, as knowledge. In a similar manner, employees are likely to place certainty values on the sets of expectations they keep. By identifying these certainty values, leaders can then find ways of meeting such expectations with needs and rewards.

One of the effective ways of creating value is through continued learning. In order to enhance organizational citizenship behavior such as DE, training and coaching should be designed to demonstrate, how DE variables could be learned and used to create value. Learning processes should be formulated to take advantage of different sets of experiences, cultural backgrounds, interests, and motivation of learners. Organizations should further strive to continuously improve in work processes and practices that encourage DE. This can be extremely beneficial in highly competitive environments in which DE could be the only competitive advantage.

Business leaders should strive to understand expectations of both customers and employees. They should through this understanding, advise employees to gauge and engage customer expectations and exercise DE appropriately, in line with customer needs. Creating value for the customer includes meeting their needs that may simply mean maintaining good social relationships. Good social relationships may prevent customers from seeking business with other organizations.

Business leaders must ensure that systems for delivering feedback are in place. Feedback can help in building the self-image. Employees are likely to develop confidence through feedback and thus exercise DE more accurately. Self-image can thus, encourage employees to participate and offer their DE in wider professional networks.

7.7 FUTURE WORK

Future work can determine the role that DE plays in servitization. This can be an attempt to test whether the value of DE is a significant contributor to the rapid transition of many organizations and economies from both the industry and service sectors.

Future research should investigate factors that attract employees to join clusters. The research could explore the influence these factors have on clusters and their impact on improving DE. This is plausible using the multilevel modeling.

The issue of value congruence requires more research. Researchers could explore employee expectations and adaptive behavior and overcoming the trust barrier. Future research should investigate whether value congruence can reduce mistrust. Without trust, exercising DE in professional networks may be impossible. Other plausible areas would include examining which specific values can lead to for example, higher valence and self-affirmation rates in different work groups and sectors.

Research should also focus on discretionary effort in sectors such as the military and defense forces. This may be an attempt to understand whether such areas are, still highly command oriented or are evolving like other sectors. Specifically, it would be interesting to investigate how employees in such sectors differentiate between command and efforts that are purely unsolicited. It can be anticipated that the issues of culture, dissonance and self-affirmation would dominate the discussions because of the command orientation of this field. Other interesting areas would include research on sports such as rugby or football that are highly based on teamwork.

Future work can further employ qualitative methods to investigate the validity of the VIEA model. A qualitative research can provide more insight why self-affirmation is highly related to valence and less indirectly related to discretionary behavior. This is also likely to explain

more clearly, the effects of norms on self-affirmation. Ways of demonstrating how self-affirmation may reduce dissonance in expectancies are important for improving setting of valences. Specifically, emotional orientation (EO) and efficacious action (EA) items need further investigation. In all the models, EO and EA were problematic and could be the potential causes of cognitive dissonance.

Research can also look into DE and environmental issues. Activists, company executives and typically politicians exercise DE by way of participating in community services such as planting trees to encourage preservation of nature. People in fact want to show their leadership acumen and influence by demonstrating that they care about the environment. This helps in creating personal image especially in communities that directly feel the impact of environmental imbalances such as deforestation. Conservation of nature is an expression of valence. Valence includes, recycling of paper and advocating for renewable energies. Such discretionary behavior may seem small, but efficiency performance of the environment in terms of self-regulation may be largely dependent on it. Although DE is not explicitly researched in relation to the environment, there is a lot of debate about human behavior and environmental imbalances such as global warming.

Extended communities that are independent of work can benefit from DE. For example, by employees taking part in educating neighboring communities, organizations would be grooming potential and responsible workers.

DE can help communities survive harsh circumstances such as inversions if people willingly help one another. This is one of the attributes of DE. Future research should therefore, include such elements.

Appendix A

Self-Assessment Tool for Expectancies within Professional Networks

The following self-assessment tool is designed to assist you in thinking through critical behaviors in 10 key areas for effectively engaging in, utilising, and creating conducive, value-adding, professional network relationships. Through self-reflection, the tool highlights areas for personal growth, and raises personal awareness with regard to working through a professional network. It will also assist the researcher in establishing a baseline against which to measure future development and success of employees and managers such as yourselves, and gain understanding of the enhancing and mediating effects of expectancies in professional network performance and learning.

| | | | | |
|--|--------------------|---------------------------------|---|------------------|
| INDUSTRY | CURRENT AGE | GENDER | NATIONALITY | ETHNICITY |
| HIGHEST ORGANISATIONAL POSITION | | YEARS WORK EXPERIENCE | CURRENT & PRIOR QUALIFICATIONS | |
| circle YES / NO | circle YES / NO | circle YES / NO | CL% | V% |
| CO-LOCATED WORK EXCLUSIVELY | | VIRTUAL WORK EXCLUSIVELY | MIX OF CO-LOCATED & VIRTUAL WORK | |
| | | APPROX. % MIX | | |

This questionnaire is designed so as to help you to reflect on your own experiences in your professional network (possibly team) in the workplace, i.e., the people you draw on, work with and count on, to complete your work successfully. Expectancy refers to a person's strength of belief and conviction about whether or not what they set out to do on a personal level is achievable, and desirable, on a workplace level, of their effort and productivity. Underpinning this expectancy, is the fact that people have different expectations and levels of confidence about what they are capable of doing. Desire and expectation are interwoven, and only mitigated by workplace issues and openness to their expectations, as well as personal self-esteem and self-confidence issues.

Please initially complete the table provided below, in which you rate the ten expectancies we have defined, on a 1 to 5 scale:

- (a) the value of each expectancy to yourself (what value you personally place on a particular expectancy) (5=exceptionally high personal value to you; 4=high personal value to you; 3=moderate personal value to you; 2=low personal value to you; 1=very low personal value to you); and,
- (b) the value of each expectancy to your workplace (what value you think your workplace would place on a particular expectancy) (5=exceptionally high personal value to your workplace; 4=high personal value to your workplace; 3=moderate personal value to your workplace; 2=low personal value to your workplace; 1=very low personal value to your workplace).

workplace; 2=low personal value to your workplace; 1=very low personal value to your workplace).

RATING OF EXPECTANCY VALUE – TO THE INDIVIDUAL & THE WORKPLACE:

| EXPECTANCY DEFINITION | PERSONAL VALUE OF EXPECTANCY (II) | VALUE OF EXPECTANCY TO YOUR WORKPLACE (IW) |
|---|--|--|
| EFFORT-PERFORMANCE EXPECTANCY (EP): Network member (you) believes that desired levels of performance are possible, given the resources, competencies and skills s/he possesses | | |
| INTERPERSONAL-PERFORMANCE EXPECTANCY (IP): Network member (you) believes that s/he is seen to be assisting, and developing, others | | |
| EFFORT-LEARNING EXPECTANCY (EL): You believe that expended personal effort will have future, value-adding learning benefits | | |
| LEADING-VISIBILITY EXPECTANCY (LV): You are seen to be in step with new trends and the cutting-edge, and acknowledged as being knowledgeable and practicing at the forefront | | |
| NETWORK-PERFORMANCE EXPECTANCY (NP): Network member (you) believes that his/her colleagues are committed to the goals and objectives of the network | | |
| INTERNAL-RECOGNITION EXPECTANCY (IR): Network member (you) believes that s/he will be recognized (with little or no financial rewards), both within the network and the greater organization, for the contribution s/he has made | | |
| MUTUAL-RECIPROCITY EXPECTANCY (MR): Network members returning directly, or indirectly, aid, resources and/or friendship offered by another network member | | |
| INDIVIDUAL-NETWORK LEARNING EXPECTANCY (NL): Network member believes that his or her own personal learning, knowledge and insights are of value, and can contribute, to the network's learning | | |
| PERFORMANCE-OUTCOME EXPECTANCY (PO): Network member (you) believes that what s/he is doing will lead to certain outcomes | | |
| TEAM-SUSTAINABILITY EXPECTANCY (TS): Network member (you) focused on sustaining the network, and its future | | |

Please now review each item below and fill in the applicable numbers (in the boxes on the right-hand side of the row) that describes, (a) your most appropriate personal response, and (b) your perception of how meaningful each response is to your workplace (please note: there are no right and wrong answers).

(a) Personal Behavior Legend – pers – (1-5) (b) **ME** - Meaningful to Workplace & Evaluated Legend – wkpl – (1-5):

| | |
|---|--------------|
| 5 | FREQUENTLY |
| 4 | SOMETIMES |
| 3 | OCCASIONALLY |
| 2 | RARELY |
| 1 | NEVER |

| | |
|---|---|
| 5 | MEASURED & REFLECTED IN PERSONAL PERFORMANCE REVIEW, AND CONSIDERED EXTREMELY IMPORTANT |
| 4 | MEASURED AND CONSIDERED EXTREMELY IMPORTANT |
| 3 | MEASURED AND CONSIDERED IMPORTANT |
| 2 | NOT MEASURED, BUT CONSIDERED IMPORTANT |
| 1 | NOT MEASURED AT ALL |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|---|---------------|----------------------------|
| EE 1a | Provide network members with the necessary resources, to play meaningful roles in something that is quite significant to the network, and/or organisation | | |
| EE 1b | Insist on, and am known to insist on, the same high standards of cooperation as I personally demonstrate in my dealings with my network members | | |
| EE 1c | Seek to involve myself in activities that exposes me to knowledge and learning, that could eventually aid my future career(s), inside my current organisation, or outside of it | | |
| EE 1d | Put aside specific time slots/periods for sharing, informally and formally, personal knowledge and insights with other network members | | |
| EE 1e | Personally play a pivotal role in consistently ensuring the achievement of desired organisational outcomes (i.e., I am needed and valuable to organisational success) | | |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|---|---------------|----------------------------|
| PE 2a | Show courage and sense of purpose to stand up for what I believe, in pushing for the desired levels of network performance | | |
| PE 2b | When appropriate, honestly acknowledge to my network when I am unable to contribute significantly or am “lost” (i.e., don’t fully know what I am doing nor do I know what to do next) | | |
| PE 2c | Believe that, with some effort, I am capable of learning the required amount, and at the required pace, in order to work competently in all workplace eventualities and situations | | |
| PE 2d | Provide accurate and constructive feedback to my network members regarding their understanding or misunderstanding of important milestones relating to our network’s work | | |
| PE 2e | In consultation with stakeholders of my network’s contribution (not network members), build a coherent set of both achievable-, and stretch, long-term goals for the professional network | | |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|--|---------------|----------------------------|
| WG 3a | Purposefully explore unconventional ideas and different approaches that could eventually (currently, or in the future) be important for my network to know | | |

| | | | |
|--------------|--|--|--|
| WG 3b | Monitor whether individual network members proactively seek project engagements, and periods of projects, that suit (are aligned to) their personal team styles | | |
| WG 3c | Consistently work at, and seek through the eliciting of their viewpoints, the integration and alignment of my work goals with the goals of reciprocal (other contributing) members | | |
| WG 3d | Continuously seek to improve network processes and communication to achieve more effective network cooperation and higher levels of reciprocity among network members | | |
| WG 3e | Build a broad base of support, for my network, among key stakeholders by identifying and positioning ideas to satisfy their needs, interests and concerns | | |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|--|---------------|---------------------|
| EO 4a | Allow for the expression of emotion as it relates to the performance and under-performance of network members, without allowing it to impact negatively on others or the organisation | | |
| EO 4b | Proactively seek out opportunities to assist network members in challenging projects, or help them to do something extra, beyond the minimal requirements of workplace performance | | |
| EO 4c | Prefer non-financial rewards over financial rewards (extended leave, flexible work hours, attend conferences, sent on courses not related to work issues, explicit peer recognition, etc.) | | |
| EO 4d | My preference is for specific recognition and feedback concerning my contribution (not general platitudes & global statements) from other network members | | |
| EO 4e | Consistently demonstrate high levels of respect for my network members in conversations and dealings with other non-members (in & out of the presence of my network members) | | |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|---|---------------|---------------------|
| PC 5a | Regularly feedback new and different information and knowledge to my network members (information and knowledge that they may not have come across) | | |
| PC 5b | Believe that my network members will match my effort in ensuring our shared success in overcoming challenging tasks/projects or navigating areas not previously ventured into | | |
| PC 5c | Deal with would-be dominant network individual's, who no longer appear to share the same underlying intent & values of the network (e.g., warning, communicate, formal complaint, etc.) | | |
| PC 5d | Share reputation and successes of network members with other networks (inside and outside of organisation) | | |
| PC 5e | Ensure that my network members' personal goals and needs are aligned with the desired network outcome(s), and therefore their needs are gratified when achieved | | |

| SPECIFIC RESPONSES | | pers (1-5) | ME wkpl (1-5) |
|--------------------|--|---------------|---------------------|
| EA 6a | Expend my personal energy and effort only in those things/processes/projects that currently has personal learning benefit for me, or will have in the future | | |
| EA 6b | Actively seek to ensure the transference of my knowledge and insights across, and outside my, discipline/functional boundaries (both within and outside of the organisation) | | |
| EA 6c | Regularly subject my ideas to scrutiny from non-network members (i.e., present at conferences, publish in international peer-reviewed journals, write books, etc.) | | |
| EA 6d | Achieve more of the network milestones/goals compared to other network members, given equal access to resources and aid | | |
| EA 6e | Seek to pull knowledgeable people, and sources of learning and knowledge, into my network (who/that do not yet have informal, or formal, membership of my network) | | |

It is understood by myself that the highest levels of confidentiality will be employed in the treatment of the results of this questionnaire, and that the results hereof will be used for research purposes only. Also, that none of my personal information will be divulged to my employer or prospective/future employer(s), or any other person (not explicitly stated in this

document). It is also understood that my name, and any other information that can uniquely identify me, cannot be used in any form or manner in the research, or in publication.

I hereby, therefore, **DO / DO NOT** (*circle choice*) give permission to Prof. Kurt April (Professor at RSM Erasmus University) and Prof. Eon Smit (Professor at Stellenbosch Business School) to research ***trend data*** and ***key areas of re-design or enhancement to the framework*** above, in pursuit of a more robust and empirically-based understanding of the human condition through research, and subsequent publication for debate.

PRINT FULL NAME

DATE

Appendix B

Descriptive Statistics

| Gender | Frequency | Percent |
|--------------------|-----------|---------|
| Male | 918 | 64.4 |
| Female | 507 | 35.6 |
| Age | | |
| Up to 30 years old | 468 | 32.8 |
| 31 – 35 years old | 392 | 27.5 |
| 36 – 40 years old | 213 | 14.9 |
| 41 – 45 years old | 131 | 9.2 |
| 46 – 50 years old | 86 | 6 |
| over 50 years old | 135 | 9.5 |

Table 1 describes gender and age ranges of the sample data.

| |
|------------------|
| |
| Ethnicity |

| | |
|----------|--------------------------------|
| Asian | Asian, Indian, American Indian |
| Black | Black |
| Coloured | Coloured |
| White | White |

Table 2 illustrates ethnicity of the respondents in groups

| Nationality | |
|--------------------|--|
| African | Botswana, Zimbabwe, Tanzania, Zambia, Swaziland, Liberia |
| British | UK, Wales |
| American | USA |
| Australian | Australia |
| Canadian | Canada |
| Middle East | All middle eastern countries |
| Europe | Germany, Netherlands, Poland |
| India | Indian |
| South Africa | South Africa |

Table 3: Describes nationality and regional categories of the respondents

| <i>Gender</i> | Male or Female |
|-------------------------|--|
| <i>Work Environment</i> | Virtual or co-located |
| <i>Age</i> | <30, 31-35, 36-40, 41-45, 46-50, > 50 |
| <i>Work Experience</i> | <5, 6-10, 11-15, 16-20, 21-25 |
| <i>Qualification</i> | Matric, Bachelors, Diploma, Masters, Doctorate |

Table 4 illustrates gender, type of work environments, age, work experience and qualification of the respondents.

| Sector | Frequency | Percent |
|-----------|-----------|---------|
| Education | 82 | 5.8 |

| | | |
|---------------|-----|------|
| Engineering | 136 | 9.5 |
| Entertainment | 24 | 1.7 |
| Environment | 70 | 4.9 |
| Financial | 240 | 16.8 |
| FMCG | 70 | 5 |
| Government | 31 | 2.2 |
| Manufacturing | 49 | 3.4 |
| Media | 86 | 6 |
| Medical | 90 | 6.3 |
| Mining | 82 | 5.8 |
| NGO | 32 | 2.2 |
| Petroleum | 62 | 4.4 |
| Retail | 77 | 5.4 |
| Manufacturing | 49 | 3.4 |
| Others | 8 | 0.6 |

Table 5: Illustrates frequencies and percentages of respondents according to sector.

| Position | |
|--------------|---|
| CEO | CEO |
| Director | Partner, Director of equivalent |
| Manager | Manager or Equivalent |
| Section Head | Coordinator, Section head |
| Specialist | All specialists, engineers, consultants, administration |

Table 6 shows position grouped according to job status

Appendix C

Correlation Analysis

| | | | | | |
|--|----|----|----|----|---------------|
| | | | | | personal side |
| | 1a | 1b | 1c | 1d | 1e |

| | | | | | |
|----|------|------|------|------|------|
| 1a | 1.00 | | | | |
| 1b | 0.31 | 1.00 | | | |
| 1c | 0.26 | 0.24 | 1.00 | | |
| 1d | 0.34 | 0.27 | 0.27 | 1.00 | |
| 1e | 0.35 | 0.29 | 0.19 | 0.25 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1: Item level correlations for effort performance construct on class C

| | | | | | |
|----|------|------|------|------|-----------|
| | | | | | work side |
| | 2a | 2b | 2c | 2d | 2e |
| 1a | 1.00 | | | | |
| 1b | 0.64 | 1.00 | | | |
| 1c | 0.45 | 0.57 | 1.00 | | |
| 1d | 0.45 | 0.49 | 0.55 | 1.00 | |
| 1e | 0.41 | 0.41 | 0.37 | 0.35 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Item level correlations for effort performance construct on class D

| | | | | | |
|----|------|------|------|------|---------------|
| | | | | | personal side |
| | 2a | 2b | 2c | 2d | 2e |
| 2a | 1.00 | | | | |
| 2b | 0.18 | 1.00 | | | |
| 2c | 0.29 | 0.22 | 1.00 | | |
| 2d | 0.33 | 0.16 | 0.29 | 1.00 | |
| 2e | 0.29 | 0.15 | 0.19 | 0.40 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3: Item level correlations for effort learning expectancy on class C

| | | | | | |
|-----------|------|------|------|------|------|
| Work side | | | | | |
| | 2a | 2b | 2c | 2d | 2e |
| 2a | 1.00 | | | | |
| 2b | 0.53 | 1.00 | | | |
| 2c | 0.54 | 0.51 | 1.00 | | |
| 2d | 0.49 | 0.47 | 0.51 | 1.00 | |
| 2e | 0.46 | 0.42 | 0.42 | 0.52 | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 4: Item level correlations for effort learning expectancy on class D

| Personal side | | | | | |
|---------------|------|------|------|------|------|
| | 3a | 3b | 3c | 3d | 3e |
| 3a | 1.00 | | | | |
| 3b | 0.32 | 1.00 | | | |
| 3c | 0.23 | 0.36 | 1.00 | | |
| 3d | 0.26 | 0.34 | 0.44 | 1.00 | |
| 3e | 0.36 | 0.39 | 0.42 | 0.47 | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 5: Item level correlations for workplace goals on class C

| Work side | | | | | |
|-----------|------|------|------|------|------|
| | 3a | 3b | 3c | 3d | 3e |
| 3a | 1.00 | | | | |
| 3b | 0.57 | 1.00 | | | |
| 3c | 0.46 | 0.51 | 1.00 | | |
| 3d | 0.48 | 0.51 | 0.58 | 1.00 | |
| 3e | 0.50 | 0.50 | 0.51 | 0.63 | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 6: Item level correlations of workplace goals on class D

| Personal side | | | | | |
|---------------|------|------|------|------|------|
| | 4a | 4b | 4c | 4d | 4e |
| 4a | 1.00 | | | | |
| 4b | 0.39 | 1.00 | | | |
| 4c | 0.24 | 0.25 | 1.00 | | |
| 4d | 0.20 | 0.19 | 0.16 | 1.00 | |
| 4e | 0.23 | 0.22 | 0.18 | 0.24 | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 7: Item level correlations of emotion orientation on class C

| | Work side | | | | |
|----|-----------|------|------|------|------|
| | 4a | 4b | 4c | 4d | 4e |
| 4a | 1.00 | | | | |
| 4b | 0.57 | 1.00 | | | |
| 4c | 0.38 | 0.42 | 1.00 | | |
| 4d | 0.44 | 0.46 | 0.46 | 1.00 | |
| 4e | 0.49 | 0.53 | 0.41 | 0.57 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8: Item correlation of emotion orientation on class D

| | Personal side | | | | |
|----|---------------|------|------|------|------|
| | 5a | 5b | 5c | 5d | 5e |
| 5a | 1.00 | | | | |
| 5b | 0.31 | 1.00 | | | |
| 5c | 0.27 | 0.24 | 1.00 | | |
| 5d | 0.31 | 0.32 | 0.28 | 1.00 | |
| 5e | 0.33 | 0.31 | 0.36 | 0.39 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 9: Item correlations of peer comparison on class C

| | Work side | | | | |
|----|-----------|------|------|------|------|
| | 5a | 5b | 5c | 5d | 5e |
| 5a | 1.00 | | | | |
| 5b | 0.57 | 1.00 | | | |
| 5c | 0.38 | 0.42 | 1.00 | | |
| 5d | 0.44 | 0.46 | 0.46 | 1.00 | |
| 5e | 0.49 | 0.53 | 0.41 | 0.57 | 1.00 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 10: Item correlations of peer comparison on class D

| Personal side | | | | | |
|---------------|------|------|------|------|------|
| | 6a | 6b | 6c | 6d | 6e |
| 6a | 1.00 | | | | |
| 6b | 0.20 | 1.00 | | | |
| 6c | 0.16 | 0.28 | 1.00 | | |
| 6d | 0.19 | 0.28 | 0.30 | 1.00 | |
| 6e | 0.13 | 0.35 | 0.36 | 0.37 | 1.00 |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 11: Item correlations of efficacious action on class C

| Work side | | | | | |
|-----------|------|------|------|------|------|
| | 6a | 6b | 6c | 6d | 6e |
| 6a | 1.00 | | | | |
| 6b | 0.47 | 1.00 | | | |
| 6c | 0.38 | 0.47 | 1.00 | | |
| 6d | 0.36 | 0.43 | 0.40 | 1.00 | |
| 6e | 0.40 | 0.56 | 0.48 | 0.46 | 1.00 |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 12: Item correlations of efficacious action on class D

Appendix D

Factor Analysis

| Total Variance Explained | | | | | | | | | |
|--------------------------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component | Initial Eigen values | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3.388 | 33.883 | 33.883 | 3.388 | 33.883 | 33.883 | 2.526 | 25.263 | 25.263 |
| 2 | 1.039 | 10.387 | 44.270 | 1.039 | 10.387 | 44.270 | 1.901 | 19.007 | 44.270 |

| | | | |
|----|------|-------|---------|
| 3 | .892 | 8.919 | 53.189 |
| 4 | .776 | 7.757 | 60.946 |
| 5 | .750 | 7.504 | 68.450 |
| 6 | .708 | 7.079 | 75.529 |
| 7 | .685 | 6.854 | 82.383 |
| 8 | .627 | 6.270 | 88.653 |
| 9 | .581 | 5.808 | 94.461 |
| 10 | .554 | 5.539 | 100.000 |

Extraction Method: Principal Component Analysis.

Table 1 illustrates the total variance explained in extraction of 2 components from the data set of class A.

| Total Variance Explained | | | | | | |
|--------------------------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| Component | Initial Eigen values | | | Extraction Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.136 | 41.365 | 41.365 | 4.136 | 41.365 | 41.365 |
| 2 | .865 | 8.655 | 50.019 | | | |
| 3 | .793 | 7.929 | 57.949 | | | |
| 4 | .767 | 7.673 | 65.622 | | | |
| 5 | .731 | 7.306 | 72.927 | | | |
| 6 | .600 | 6.000 | 78.928 | | | |
| 7 | .568 | 5.680 | 84.607 | | | |
| 8 | .550 | 5.503 | 90.111 | | | |
| 9 | .530 | 5.298 | 95.408 | | | |
| 10 | .459 | 4.592 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

Table 2: Illustrates the total variance explained in extracting of one component from the data set in class B

| Component | Initial Eigen values | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 14.264 | 35.659 | 35.659 | 14.264 | 35.659 | 35.659 | 7.637 | 19.094 | 19.094 |

| | | | | | | | | | |
|---|-------|-------|--------|-------|-------|--------|-------|--------|--------|
| 2 | 3.159 | 7.897 | 43.556 | 3.159 | 7.897 | 43.556 | 4.428 | 11.069 | 30.163 |
| 3 | 1.362 | 3.405 | 46.961 | 1.362 | 3.405 | 46.961 | 4.311 | 10.777 | 40.939 |
| 4 | 1.108 | 2.770 | 49.731 | 1.108 | 2.770 | 49.731 | 3.185 | 7.961 | 48.901 |
| 5 | 1.015 | 2.538 | 52.269 | 1.015 | 2.538 | 52.269 | 1.348 | 3.369 | 52.269 |

Table 3 illustrates the total variance explained in extracting the five factors from the entire data sample

| Total Variance Explained | | | | | | | | | |
|--------------------------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component | Initial Eigen values | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6.195 | 44.247 | 44.247 | 6.195 | 44.247 | 44.247 | 4.534 | 32.389 | 32.389 |
| 2 | 2.533 | 18.096 | 62.343 | 2.533 | 18.096 | 62.343 | 3.712 | 26.514 | 58.902 |
| 3 | 1.123 | 8.018 | 70.361 | 1.123 | 8.018 | 70.361 | 1.604 | 11.459 | 70.361 |
| 4 | .709 | 5.061 | 75.423 | | | | | | |
| 5 | .597 | 4.264 | 79.687 | | | | | | |
| 6 | .553 | 3.949 | 83.636 | | | | | | |
| 7 | .492 | 3.514 | 87.150 | | | | | | |
| 8 | .415 | 2.965 | 90.115 | | | | | | |
| 9 | .383 | 2.734 | 92.849 | | | | | | |
| 10 | .279 | 1.991 | 94.840 | | | | | | |
| 11 | .216 | 1.544 | 96.384 | | | | | | |
| 12 | .181 | 1.291 | 97.675 | | | | | | |
| 13 | .171 | 1.222 | 98.896 | | | | | | |
| 14 | .155 | 1.104 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

Table 4 illustrates the variances in the extraction of three component solution from the averaged values of classes A, B, C and D.

Appendix E

Regression Tables

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|------|-------------|--------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 71.997 | 6 | 12.000 | 34.275 | .000 ^a |
| | Residual | 537.745 | 1536 | .350 | | |
| | Total | 609.742 | 1542 | | | |

a. Predictors: (Constant), AvEApersonal, AvEOpersonal, AvEEpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: Effort performance Expectancy(EP)

| Coefficients ^a | | | | | | | | | | |
|---------------------------|--------------|----------------|------------|--------------|--------|--------------|------------|---------|--------------|------|
| Model | | Unstandardized | | Standardized | | Correlations | | | Collinearity | |
| | | B | Std. Error | Beta | T | Sig. | Zero-order | Partial | Part | VIF |
| 1 | (Constant) | 2.805 | .124 | | 22.684 | .000 | | | | |
| | AvEEpersonal | .235 | .036 | .217 | 6.573 | .000 | .318 | .165 | .158 | .525 |
| | AvPEpersonal | .159 | .037 | .144 | 4.298 | .000 | .292 | .109 | .103 | .510 |
| | AvWGpersonal | .018 | .030 | .020 | .590 | .555 | .220 | .015 | .014 | .481 |
| | AvEOpersonal | .047 | .030 | .048 | 1.552 | .121 | .216 | .040 | .037 | .609 |
| | AvPCpersonal | -.034 | .030 | -.037 | -1.136 | .256 | .189 | -.029 | -.027 | .527 |
| | AvEApersonal | -.005 | .026 | -.006 | -.200 | .842 | .153 | -.005 | -.005 | .668 |

a. Dependent Variable: Effort performance Expectancy(EP)

Table 1 illustrates regression of a dependent variable EP against the behavior variables of class C. Variables EE and PE were the main cause of variances in the dependent variable EP. The VIF, with all but one, were less than 2. This revealed that collinearity problems did not occur.

| Collinearity Diagnostics ^a | | | | | | | | | | |
|---------------------------------------|-----------|------------|-----------|------------|----------------------|------------|------------|------------|------------|------------|
| Model | Dimension | Eigenvalue | Condition | | Variance Proportions | | | | | |
| | | | Index | (Constant) | EEpersonal | PEpersonal | WGpersonal | EOpersonal | PCpersonal | EApersonal |
| 1 | 1 | 6.908 | 1.000 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| | 2 | .027 | 16.102 | .07 | .02 | .02 | .06 | .04 | .00 | .64 |
| | 3 | .020 | 18.529 | .17 | .00 | .00 | .29 | .00 | .20 | .29 |

| | | | | | | | | | |
|---|------|--------|-----|-----|-----|-----|-----|-----|-----|
| 4 | .015 | 21.529 | .02 | .05 | .02 | .40 | .28 | .33 | .05 |
| 5 | .014 | 22.395 | .04 | .02 | .00 | .08 | .65 | .44 | .00 |
| 6 | .009 | 27.219 | .69 | .29 | .22 | .17 | .00 | .02 | .02 |
| 7 | .008 | 30.200 | .00 | .61 | .73 | .00 | .02 | .00 | .00 |

a. Dependent Variable: Effort performance Expectancy(EP)

a. Predictors: (Constant), AvEAPersonal, AvEOPersonal, AvEEPersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

Table 2 illustrates the condition tasting for collinearity in table 1 variables. All the values in column four (Condition Index) were below 35, signifying that there was no collinearity problems.

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|------|-------------|--------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 111.561 | 6 | 18.594 | 27.517 | .000 ^a |
| | Residual | 1037.199 | 1535 | .676 | | |
| | Total | 1148.760 | 1541 | | | |

a. Predictors: (Constant), AvEAPersonal, AvEOPersonal, AvEEPersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: Mutual Reciprocity Expectancy (MR)

| Coefficients ^a | | | | | | | | | | |
|---------------------------|--------------|-----------------------------|------------|---------------------------|--------|--------------|------------|---------|-------------------------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | Correlations | | | Collinearity Statistics | |
| | | B | Std. Error | Beta | T | Sig. | Zero-order | Partial | Part | VIF |
| 1 | (Constant) | 1.760 | .172 | | 10.246 | .000 | | | | |
| | AvEEPersonal | .131 | .050 | .089 | 2.644 | .008 | .249 | .067 | .064 | 1.906 |
| | AvPEpersonal | .128 | .051 | .084 | 2.481 | .013 | .250 | .063 | .060 | 1.961 |
| | AvWGpersonal | .031 | .041 | .026 | .750 | .454 | .223 | .019 | .018 | 2.084 |
| | AvEOPersonal | .102 | .042 | .076 | 2.439 | .015 | .234 | .062 | .059 | 1.643 |
| | AvPCpersonal | .163 | .042 | .130 | 3.897 | .000 | .264 | .099 | .095 | 1.896 |
| | AvEAPersonal | -.034 | .036 | -.028 | -.930 | .352 | .146 | -.024 | -.023 | 1.499 |

a. Dependent Variable: Mutual Reciprocity Expectancy (MR)

Table 3 illustrates regression involving MR as a Dependent variable against behavior as independent variables. Column T reveals that EE, PE, EO and PC are the most causes of variances in MR. The VIF were within acceptable ranges of about and less than 2.

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|------|-------------|--------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 230.279 | 6 | 38.380 | 61.984 | .000 ^a |
| | Residual | 949.839 | 1534 | .619 | | |
| | Total | 1180.118 | 1540 | | | |

a. Predictors: (Constant), AvEApersonal, AvEOpersonal, AvEEpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: Team Sustainability Expectancy(TS)

| Coefficients ^a | | | | | | | | | | |
|---------------------------|--------------|----------------|------|--------------|--------|--------------|---------|-------|--------------|-------|
| Model | | Unstandardized | | Standardized | | Correlations | | | Collinearity | |
| | | Coefficients | | Coefficients | | Zero-order | Partial | Part | Tolerance | VIF |
| 1 | (Constant) | 1.239 | .164 | | 7.533 | .000 | | | | |
| | AvEEpersonal | .378 | .048 | .251 | 7.936 | .000 | .404 | .199 | .182 | 1.905 |
| | AvPEpersonal | .176 | .049 | .115 | 3.568 | .000 | .350 | .091 | .082 | 1.968 |
| | AvWGpersonal | .114 | .040 | .095 | 2.865 | .004 | .327 | .073 | .066 | 2.081 |
| | AvEOpersonal | -.009 | .040 | -.007 | -.231 | .817 | .255 | -.006 | -.005 | 1.644 |
| | AvPCpersonal | .139 | .040 | .109 | 3.462 | .001 | .328 | .088 | .079 | 1.901 |
| | AvEApersonal | -.077 | .035 | -.062 | -2.218 | .027 | .185 | -.057 | -.051 | 1.497 |

a. Dependent Variable: Team Sustainability Expectancy(TS)

Table 4 illustrates the regression of TS as a dependent variable against the behavior variables. The t-statistic reveals that, only EO was insignificant. This implies that EE, PE, WG, PC and EA significantly cause the variance in TS. There were no collinearity problems as indicated by small VIF and the conditional index of less than 35.

| ANOVA ^{b,c} | | | | | | | | | | |
|----------------------|--|--|--|--|--|--|--|--|--|--|
|----------------------|--|--|--|--|--|--|--|--|--|--|

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|------|-------------|---------|-------------------|
| 1 | Regression | 377.217 | 6 | 62.870 | 143.586 | .000 ^a |
| | Residual | 672.106 | 1535 | .438 | | |
| | Total | 1049.323 | 1541 | | | |

a. Predictors: (Constant), AvEApersonal, AvEEpersonal, AvEOpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: AvEpersonal

c. Weighted Least Squares Regression - Weighted by AvEEwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|------|-------------------------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Correlations | | | Collinearity Statistics |
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance VIF |
| 1 | (Constant) | 1.875 | .080 | | 23.453 | .000 | | | | |
| | AvEEpersonal | .253 | .022 | .310 | 11.283 | .000 | .541 | .277 | .230 | .554 1.806 |
| | AvPEpersonal | .144 | .023 | .175 | 6.277 | .000 | .486 | .158 | .128 | .536 1.865 |
| | AvWGpersonal | .060 | .018 | .094 | 3.252 | .001 | .445 | .083 | .066 | .498 2.010 |
| | AvEOpersonal | .015 | .019 | .020 | .779 | .436 | .369 | .020 | .016 | .609 1.643 |
| | AvPCpersonal | .065 | .019 | .097 | 3.486 | .001 | .429 | .089 | .071 | .540 1.851 |
| | AvEApersonal | .030 | .016 | .047 | 1.879 | .060 | .339 | .048 | .038 | .669 1.494 |

a. Dependent Variable: AvEpersonal

b. Weighted Least Squares Regression - Weighted by AvEEwork

Table 5 illustrates regression between expectancies and behavior variables but with conditioning or weighted by EEwork (Whether EE was considered important and measured at workplace). The results revealed that EO remained insignificant. The t statics however, increased rapidly from -.231 to 0.779.

| ANOVA ^{b,c} | | | | | | |
|----------------------|------------|----------------|------|-------------|---------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 380.174 | 6 | 63.362 | 146.297 | .000 ^a |
| | Residual | 664.819 | 1535 | .433 | | |
| | Total | 1044.993 | 1541 | | | |

a. Predictors: (Constant), AvEApersonal, AvEOpersonal, AvEEpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: AvEpersonal

c. Weighted Least Squares Regression - Weighted by AvPEwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|------|-------------------------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Correlations | | | Collinearity Statistics |
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance VIF |
| 1 | (Constant) | 1.879 | .079 | | 23.697 | .000 | | | | |
| | AvEEpersonal | .253 | .022 | .314 | 11.377 | .000 | .547 | .279 | .232 | .543 1.842 |
| | AvPEpersonal | .142 | .023 | .172 | 6.176 | .000 | .489 | .156 | .126 | .533 1.876 |
| | AvWGpersonal | .063 | .018 | .099 | 3.420 | .001 | .450 | .087 | .070 | .495 2.022 |

| | | | | | | | | | | |
|--------------|------|------|------|-------|------|------|------|------|------|-------|
| AvEOpersonal | .016 | .019 | .022 | .827 | .408 | .374 | .021 | .017 | .604 | 1.656 |
| AvPCpersonal | .062 | .019 | .092 | 3.316 | .001 | .430 | .084 | .067 | .540 | 1.852 |
| AvEApersonal | .029 | .016 | .045 | 1.821 | .069 | .342 | .046 | .037 | .665 | 1.504 |

a. Dependent Variable: AvEpersonal

b. Weighted Least Squares Regression - Weighted by AvPEwork

Table 6 illustrates regression of expectancy and behavior variables but conditioning for PE. The results revealed a further increase in EO to 0.827 from the previous result in table 5.

| ANOVA ^{b,c} | | | | | | |
|----------------------|------------|----------------|------|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 356.515 | 6 | 59.419 | 150.749 | .000 ^a |
| | Residual | 605.034 | 1535 | .394 | | |
| | Total | 961.549 | 1541 | | | |

a. Predictors: (Constant), AvEApersonal, AvEEpersonal, AvEOpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal

b. Dependent Variable: AvEpersonal

c. Weighted Least Squares Regression - Weighted by AvWGwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|------|-------------------------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | Sig. | Correlations | | | Collinearity Statistics |
| | | B | Std. Error | Beta | t | | Zero-order | Partial | Part | Tolerance VIF |
| 1 | (Constant) | 1.867 | .078 | | 23.886 | .000 | | | | |
| | AvEEpersonal | .250 | .022 | .312 | 11.323 | .000 | .551 | .278 | .229 | .539 1.856 |
| | AvPEpersonal | .142 | .023 | .174 | 6.212 | .000 | .498 | .157 | .126 | .520 1.924 |
| | AvWGpersonal | .060 | .019 | .092 | 3.189 | .001 | .457 | .081 | .065 | .489 2.045 |
| | AvEOpersonal | .019 | .019 | .027 | 1.030 | .303 | .382 | .026 | .021 | .604 1.656 |
| | AvPCpersonal | .065 | .019 | .096 | 3.489 | .000 | .439 | .089 | .071 | .536 1.864 |
| | AvEApersonal | .032 | .016 | .049 | 1.998 | .046 | .348 | .051 | .040 | .671 1.491 |

a. Dependent Variable: AvEpersonal

b. Weighted Least Squares Regression - Weighted by AvWGwork

Table 7 illustrates regression of expectancy and behavior but conditioning on the WGwork (Whether work group behavior was considered important and measured by companies?). Results reveal that, this measure increases the significance of EO t-statistics to 1.030.

| ANOVA ^{b,c} | | | | | | |
|----------------------|------------|----------------|----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 359.413 | 6 | 59.902 | 153.097 | .000 ^a |

| | | | |
|----------|---------|------|------|
| Residual | 600.600 | 1535 | .391 |
| Total | 960.013 | 1541 | |

a. Predictors: (Constant), AvEApersonal, AvEOpersonal, AvEEpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal
b. Dependent Variable: AvEpersonal
c. Weighted Least Squares Regression - Weighted by AvEOwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|------|-------------------------|
| | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics |
| Model | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance VIF |
| 1 | (Constant) | 1.851 | .078 | | 23.692 | .000 | | | | |
| | AvEEpersonal | .253 | .022 | .315 | 11.388 | .000 | .554 | .279 | .230 | .533 1.876 |
| | AvPEpersonal | .151 | .023 | .185 | 6.630 | .000 | .504 | .167 | .134 | .522 1.917 |
| | AvWGpersonal | .055 | .018 | .086 | 2.988 | .003 | .454 | .076 | .060 | .492 2.033 |
| | AvEOpersonal | .019 | .019 | .027 | 1.033 | .302 | .379 | .026 | .021 | .615 1.626 |
| | AvPCpersonal | .055 | .019 | .081 | 2.941 | .003 | .434 | .075 | .059 | .532 1.881 |
| | AvEApersonal | .040 | .016 | .061 | 2.491 | .013 | .356 | .063 | .050 | .669 1.495 |

a. Dependent Variable: AvEpersonal
b. Weighted Least Squares Regression - Weighted by AvEOwork

Table 8: When EOwork was used to condition the regression between expectancy and behavior, EO increased but slightly. This implies that emotion orientation was not perceived by employees to be a variable that would significantly affect their DE if it was measured by companies.

| ANOVA ^{b,c} | | | | | |
|----------------------|------------|----------------|------|-------------|---------------------------|
| Model | | Sum of Squares | df | Mean Square | F Sig. |
| 1 | Regression | 370.897 | 6 | 61.816 | 153.474 .000 ^a |
| | Residual | 618.266 | 1535 | .403 | |
| | Total | 989.164 | 1541 | | |

a. Predictors: (Constant), AvEApersonal, AvEEpersonal, AvEOpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal
b. Dependent Variable: AvEpersonal
c. Weighted Least Squares Regression - Weighted by AvPCwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|------|-------------------------|
| | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Correlations | | | Collinearity Statistics |
| Model | | B | Std. Error | Beta | | | Zero-order | Partial | Part | Tolerance VIF |
| 1 | (Constant) | 1.850 | .078 | | 23.767 | .000 | | | | |
| | AvEEpersonal | .253 | .022 | .316 | 11.509 | .000 | .555 | .282 | .232 | .539 1.855 |
| | AvPEpersonal | .148 | .023 | .182 | 6.504 | .000 | .503 | .164 | .131 | .520 1.923 |
| | AvWGpersonal | .056 | .018 | .087 | 3.033 | .002 | .455 | .077 | .061 | .489 2.043 |

| | | | | | | | | | | |
|--------------|------|------|------|-------|------|------|------|------|------|-------|
| AvEOpersonal | .021 | .019 | .029 | 1.120 | .263 | .388 | .029 | .023 | .599 | 1.670 |
| AvPCpersonal | .060 | .019 | .088 | 3.207 | .001 | .439 | .082 | .065 | .535 | 1.868 |
| AvEApersonal | .033 | .016 | .052 | 2.109 | .035 | .347 | .054 | .043 | .671 | 1.490 |

a. Dependent Variable: AvEpersonal
b. Weighted Least Squares Regression - Weighted by AvPCwork

Table 9 Illustrates the result of the previous regression in table 8, but this time, conditioning for PCwork. The results revealed that the t-statistics of EO further increased to 1.120. This is however, still less than the recommended value of 1.96.

| ANOVA ^{b,c} | | | | | | |
|----------------------|------------|----------------|------|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 334.274 | 6 | 55.712 | 146.305 | .000 ^a |
| | Residual | 584.521 | 1535 | .381 | | |
| | Total | 918.795 | 1541 | | | |

a. Predictors: (Constant), AvEApersonal, AvEOpersonal, AvEEpersonal, AvPCpersonal, AvPEpersonal, AvWGpersonal
b. Dependent Variable: AvEpersonal
c. Weighted Least Squares Regression - Weighted by AvEAwork

| Coefficients ^{a,b} | | | | | | | | | | |
|-----------------------------|--------------|-----------------------------|------------|---------------------------|--------|--------------|------------|---------|-------------------------|-------|
| | | Unstandardized Coefficients | | Standardized Coefficients | | Correlations | | | Collinearity Statistics | |
| Model | | B | Std. Error | Beta | t | Sig. | Zero-order | Partial | Part | VIF |
| 1 | (Constant) | 1.884 | .079 | | 23.830 | .000 | | | | |
| | AvEEpersonal | .239 | .022 | .297 | 10.748 | .000 | .541 | .265 | .219 | 1.846 |
| | AvPEpersonal | .145 | .023 | .177 | 6.261 | .000 | .494 | .158 | .127 | 1.920 |
| | AvWGpersonal | .066 | .019 | .104 | 3.575 | .000 | .458 | .091 | .073 | 2.031 |
| | AvEOpersonal | .015 | .019 | .020 | .774 | .439 | .373 | .020 | .016 | 1.639 |
| | AvPCpersonal | .062 | .019 | .092 | 3.305 | .001 | .436 | .084 | .067 | 1.879 |
| | AvEApersonal | .038 | .016 | .058 | 2.321 | .020 | .356 | .059 | .047 | 1.496 |

a. Dependent Variable: AvEpersonal
b. Weighted Least Squares Regression - Weighted by AvEAwork

Table 10 illustrates that, when EAwork is used as a weighted variable in the regression between expectancy and behavior, the t-statistic of EO reduces significantly while the rest of the t-statistics remain significant. This suggests a relationship between efficacious action and emotion orientation. This relationship was discussed in the self-affirmation component.

Partial Discretionary Effort

| Variables Entered/Removed ^b | | | |
|--|--|-------------------|---------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | AvEAWork, AvEwork, AvPEwork, AvPCwork, AvEEwork, AvWGwork, AvEOwork ^a | | . Enter |

a. All requested variables entered.

b. Dependent Variable: DEts

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|------|-------------|---------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 249.297 | 7 | 35.614 | 960.541 | .000 ^a |
| | Residual | 56.876 | 1534 | .037 | | |
| | Total | 306.172 | 1541 | | | |

a. Predictors: (Constant), AvEAWork, AvEwork, AvPEwork, AvPCwork, AvEEwork, AvWGwork, AvEOwork

b. Dependent Variable: DEts

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|---------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -1.070 | .034 | | -31.346 | .000 |
| | AvEwork | .182 | .010 | .235 | 18.639 | .000 |
| | AvEEwork | .128 | .010 | .254 | 13.297 | .000 |
| | AvPEwork | .239 | .010 | .491 | 23.659 | .000 |
| | AvWGwork | .006 | .009 | .012 | .631 | .528 |
| | AvEOwork | -.288 | .009 | -.606 | -30.635 | .000 |
| | AvPCwork | .171 | .008 | .379 | 20.804 | .000 |
| | AvEAWork | .108 | .008 | .222 | 12.971 | .000 |

a. Dependent Variable: DEts

Table 11 illustrates the causes of variance in DEts (discretionary due to team sustainability) and norm variables (Whether companies valued DE behavior and how important this was to companies). The results revealed that WGwork was insignificant while EOwork was negatively significant. The rest of the independent variables were highly significant.

| Variables Entered/Removed ^b | | | |
|--|--|-------------------|---------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | AvEAWork, AvEwork, AvPEwork, AvPCwork, AvWGwork, AvEEwork, AvEOwork ^a | | . Enter |

a. All requested variables entered.

b. Dependent Variable: DElv

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|------|-------------|---------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 199.650 | 7 | 28.521 | 739.239 | .000 ^a |
| | Residual | 59.224 | 1535 | .039 | | |
| | Total | 258.874 | 1542 | | | |

a. Predictors: (Constant), AvEAWork, AvEwork, AvPEwork, AvPCwork, AvWGwork, AvEEwork, AvEOwork

b. Dependent Variable: DElv

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|---------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.940 | .035 | | -27.011 | .000 |
| | AvEwork | .165 | .010 | .231 | 16.540 | .000 |
| | AvEEwork | .127 | .010 | .273 | 12.923 | .000 |
| | AvPEwork | .189 | .010 | .421 | 18.313 | .000 |
| | AvWGwork | .015 | .009 | .034 | 1.570 | .117 |
| | AvEOwork | -.260 | .010 | -.595 | -27.153 | .000 |
| | AvPCwork | .114 | .008 | .275 | 13.610 | .000 |

| | | | | | |
|---------|------|------|------|--------|------|
| AvEWork | .150 | .009 | .334 | 17.590 | .000 |
|---------|------|------|------|--------|------|

a. Dependent Variable: DElv

Table 12 illustrates the causes of variance in DElv (DE due to leading visibility) and the norm variables. The results revealed that WGwork increased its t statistics while EWork reduced its t-statistics but still negative.

| Variables Entered/Removed ^b | | | |
|--|--|-------------------|---------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | AvEWork, AvEwork, AvPEwork, AvPCwork, AvWGwork, AvEEwork, AvEWork ^a | | . Enter |

a. All requested variables entered.

b. Dependent Variable: DE

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|------|-------------|----------|-------------------|
| 1 | Regression | 225.993 | 7 | 32.285 | 2095.291 | .000 ^a |
| | Residual | 23.652 | 1535 | .015 | | |
| | Total | 249.645 | 1542 | | | |

a. Predictors: (Constant), AvEWork, AvEwork, AvPEwork, AvPCwork, AvWGwork, AvEEwork, AvEWork

b. Dependent Variable: DE

| Coefficients ^a | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | Sig. |
| | | B | Std. Error | Beta | |
| 1 | (Constant) | -1.002 | .022 | | .000 |
| | AvEwork | .180 | .006 | .257 | .000 |
| | AvEEwork | .127 | .006 | .280 | .000 |
| | AvPEwork | .220 | .007 | .499 | .000 |

| | | | | | |
|----------|-------|------|-------|---------|------|
| AvWGwork | .008 | .006 | .019 | 1.369 | .171 |
| AvEOWork | -.284 | .006 | -.661 | -46.879 | .000 |
| AvPCwork | .142 | .005 | .348 | 26.721 | .000 |
| AvEAwork | .132 | .005 | .301 | 24.645 | .000 |

a. Dependent Variable: DE

Table 13 illustrates the cause of variance in DE (dependable variable), against norms as independent variables. The results revealed that EOWork, significantly but negatively contributes to the variance while WGwork does not significantly cause variance in DE.

Appendix F

Initial construct validities of VIE and VIEA Models

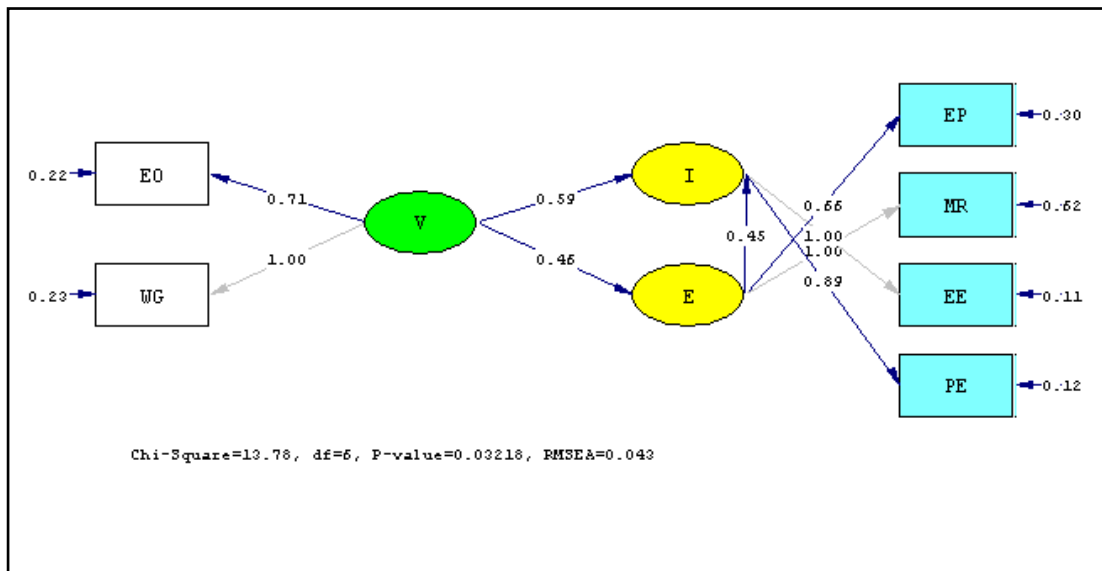


Figure 23: Initial VIE Model testing

This is an acceptable model fit for VIE with relatively fewer indicator variables. This is a parsimonious model aimed at illustrating the relationship between DE variables.

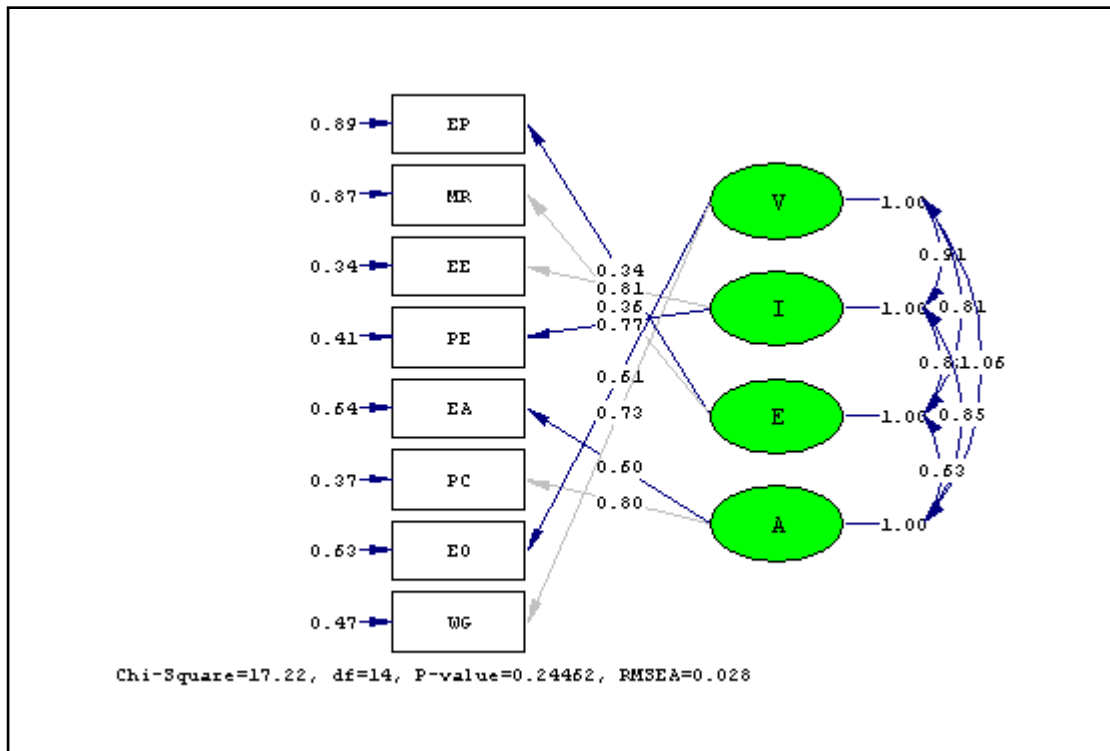


Figure 24: Initial VIEA Model testing

The initial VIEA proved to be valid and acceptable as shown by the fit indices of Chi-Square of 17 and df value of 14. The p-value was 0.24462 while the RMSEA was 0.028.

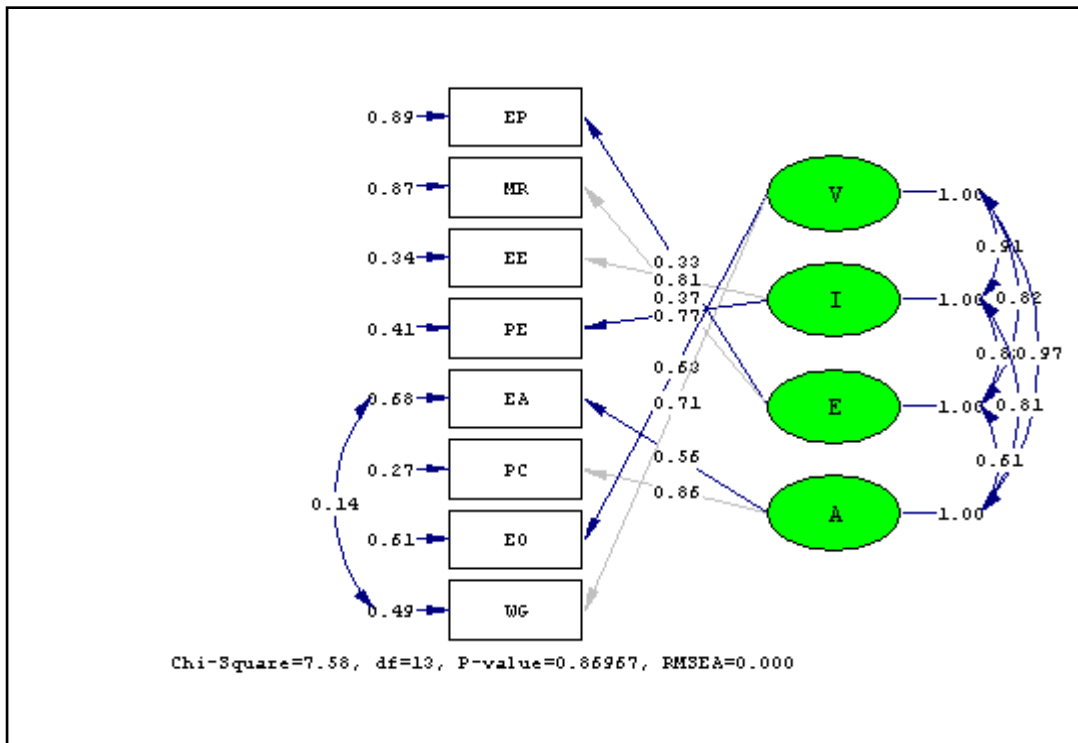


Figure 25: VIEA Class B testing

The final testing of the VIEA revealed that the model was acceptable and plausible. The Chi-Square was 8, while the p-value was 0.8697 and the RMSEA was 0.000.

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